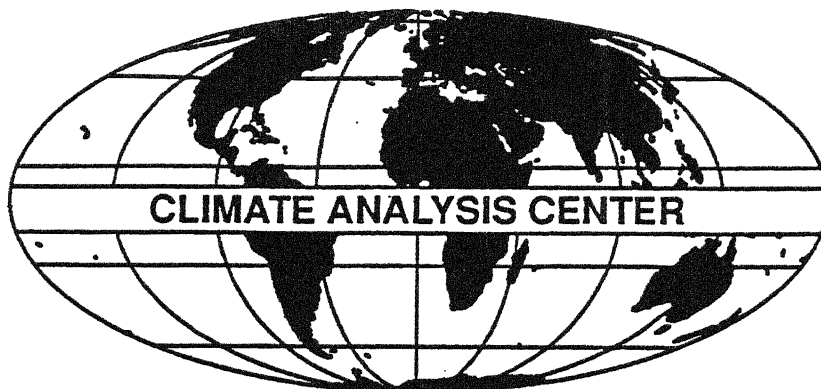


**CONTAINS:**  
**U.S. FIRE**  
**SEVERITY**  
**POTENTIAL**



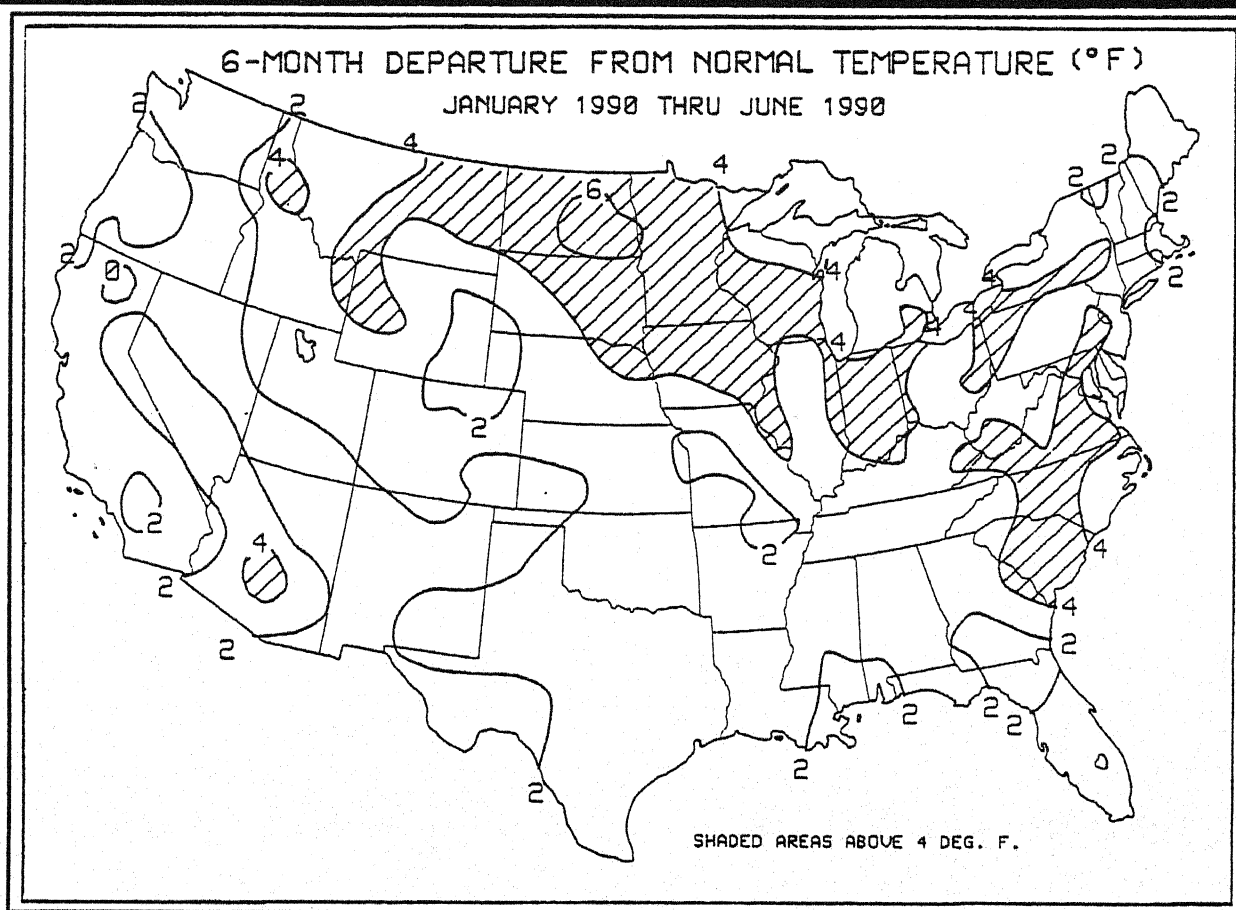
**CONTAINS:**  
**JUNE 1990**  
**UNITED**  
**STATES**  
**CLIMATE**  
**SUMMARY**

# WEEKLY CLIMATE BULLETIN

**No. 90/27**

**Washington, DC**

**July 7, 1990**



WITH MOST OF THE LOWER 48 STATES OBSERVING YET ANOTHER MONTH WITH ABOVE NORMAL TEMPERATURES (8TH WARMEST JUNE SINCE 1895), 1990 CONTINUES TO BE ONE OF THE WARMEST YEARS ON RECORD. THROUGH JUNE, ONLY 1986 (WARMEST), 1934, AND 1921 HAVE BEEN WARMER NATIONALLY. FOR MORE INFORMATION, REFER TO THE U.S. MONTHLY CLIMATE SUMMARY.

**UNITED STATES DEPARTMENT OF COMMERCE**  
**NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION**  
**NATIONAL WEATHER SERVICE-NATIONAL METEOROLOGICAL CENTER**  
**CLIMATE ANALYSIS CENTER**

# WEEKLY CLIMATE BULLETIN

This Bulletin is issued weekly by the Climate Analysis Center and is designed to indicate, in a brief concise format, current surface climatic conditions in the United States and around the world. The Bulletin contains:

- Highlights of major climatic events and anomalies.
- U.S. climatic conditions for the previous week.
- U.S. apparent temperatures (summer) or wind chill (winter).
- U.S. cooling degree days (summer) or heating degree days (winter).
- Global two-week temperature anomalies.
- Global four-week precipitation anomalies.
- Global monthly temperature and precipitation anomalies.
- Global three-month precipitation anomalies (once a month).
- Global twelve-month precipitation anomalies (every three months).
- Global three-month temperature anomalies for winter and summer seasons.
- Special climate summaries, explanations, etc. (as appropriate).

*Most analyses contained in this Bulletin are based on preliminary, unchecked data received at the Climate Analysis Center via the Global Telecommunications System. Similar analyses based on final, checked data are likely to differ to some extent from those presented here.*

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# GLOBAL CLIMATE HIGHLIGHTS

## MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF JULY 7, 1990

### 1. Alaska and Northwestern Canada:

#### EXCESSIVE HEAT AND LOW HUMIDITIES PROMOTE LARGE WILD FIRES.

Temperatures soared past 32°C at Fairbanks, AK and Bettles, AK while Barrow, AK recorded an all-time record high of 22°C as a large upper-level ridge trapped exceptionally hot air across the state and adjacent sections of Canada. In addition, weekly departures between +3°C and +6°C combined with low humidities to promote large wild fires which have scorched more than 2025 square kilometers. One fire forced the evacuation of Tok, AK, located about 225 km southeast of Fairbanks, when flames came within half a kilometer of the village [2 weeks].

### 2. North-Central United States:

#### WIDELY SCATTERED HEAVY RAIN.

Between 60 mm and 120 mm of rain drenched southeastern Minnesota, generating localized flash flooding. Unofficial reports indicated that some parts of the region may have received up to 255 mm on Saturday. Elsewhere, moderate amounts of rain (13 mm to 58 mm) were measured in northern and western Wisconsin and throughout the eastern two-thirds of Iowa, but little or no rain was recorded across the remainder of the area, promoting continued relief from the recent wet spell [Ending after 25 weeks].

### 3. Southern High Plains:

#### SIGNIFICANT MOISTURE DEFICITS DEVELOP.

Since late May, only 20% to 50% of normal precipitation has been recorded throughout the region, with portions of western Texas experiencing the largest deficits. Last week, around 20 mm fell in northwestern Kansas, but little or no precipitation fell elsewhere [6 weeks].

### 4. Southeastern U.S. and the Bahamas:

#### MORE BENEFICIAL RAINS IN FLORIDA, BUT DRY ELSEWHERE.

Between 40 mm and 115 mm soaked the southern and eastern portions of Florida, with 15 mm to 65 mm recorded across the rest of the state, bringing further relief from long-term dryness to the state. Farther south, only 10 mm to 25 mm dampened the northern

Bahamas, providing a minimal respite from recent excessive dryness. In South Carolina, 7 mm to 40 mm of rain did little to improve moisture deficits, and conditions in Georgia worsened as less than 20 mm were recorded throughout the state. Crop damage is imminent across Georgia unless widespread, ample rainfall arrives shortly, according to the Georgia Department of Agriculture. The peanut, peach, and corn crops are all at a critical stage in development and need rain [13 weeks].

### 5. Southeastern Europe and Turkey:

#### MOISTURE DEFICITS INCREASE IN MOST AREAS.

Little or no rain was measured across most of the afflicted region, causing rainfall deficiencies to climb. Northern portions of Romania and Yugoslavia, however, received some relief in the form of 30 mm to 70 mm of rain [10 weeks].

### 6. Southern and Central India:

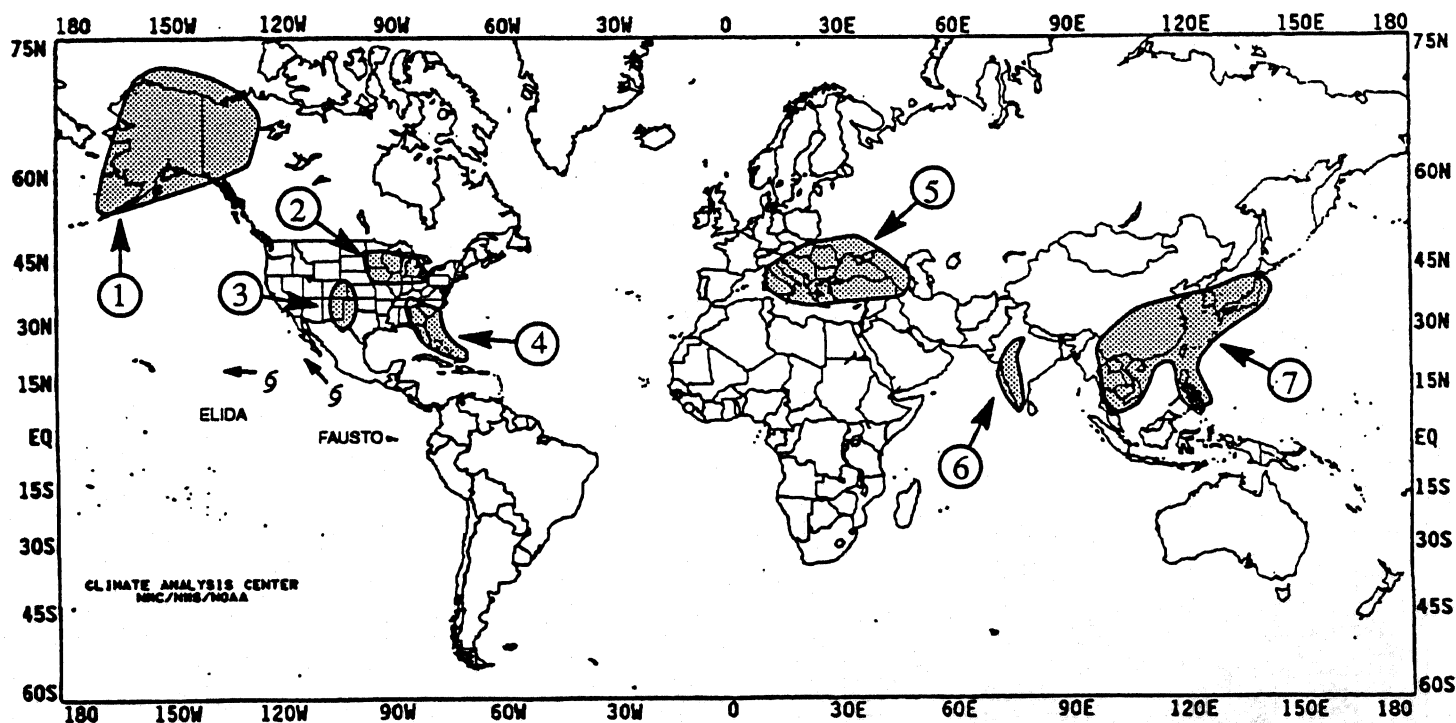
#### MONSOONAL RAINFALL REMAINS AT OR ABOVE NORMAL.

As July progresses, rainfall totals across the region typically increase as monsoonal showers become more frequent and widespread. This year, with heavy rain arriving early, long-term moisture surpluses remained intact as 100 mm to 250 mm of rain soaked southern India. Nearly 200 mm deluged central parts of the nation where weak monsoons have prevailed during the past few seasons. Short-term rainfall surpluses, however, continue to decrease as the normal precipitation increases [Ended after 6 weeks].

### 7. Southeastern Asia:

#### SOME RELIEF FOR TAIWAN, THE PHILIPPINES, AND CHINA.

Rainfall totals finally tapered off slightly across China (where scattered locations reported 100 mm - 200 mm), the Philippines (which received 50 mm - 100 mm, with isolated locations reporting 200 mm), and Taiwan (only 20 mm - 40 mm). Unfortunately, excessive rains generated severe flooding early in the week across southern Japan as thunderstorms dumped up to 350 mm on portions of southern Honshu Island. In addition, moderate to heavy rains (between 40 mm and 90 mm) soaked the Koreans, with 100 mm - 200 mm reported near the DMZ [Ending after 15 weeks].



#### EXPLANATION

TEXT: Approximate duration of anomalies is in brackets. Precipitation amounts and temperature departures are this week's values.

MAP: Approximate locations of major anomalies and episodic events are shown. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, long-term anomalies, and other details.

# UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF JULY 1 – JULY 7, 1990

For the second consecutive week, predominantly dry weather engendered recovery from the recent wet spell across the central and northeastern sections of the country, and widespread, heavy precipitation was generally restricted to those areas suffering from long-term dryness. In parts of the upper Midwest, however, heavy rains fell on saturated soils, producing localized flash flooding, while dry weather aggravated parched conditions along the West Coast, in southern Texas, and along the southern Atlantic Coast.

The week began with hot weather entrenched across the Plains and southern tier of states while cooler air slowly pushed southward into the Pacific Northwest, Great Lakes, and Northeast. Severe weather accompanied the leading edge of the cool air as tennis-ball-sized hail, hurricane-force wind gusts, and a few tornadoes battered parts of Virginia and North Carolina. Damaging winds and large hail also accompanied thunderstorms in the northern Rockies while tropical thundershowers, a few of them severe, dumped torrents of rain on much of southern Florida.

As the week progressed, searing heat continued across the Plains and spread into the eastern U.S. while monsoonal thundershowers ended the heat wave in the Southwest. The lower temperatures and increased humidity helped contain or extinguish several large forest fires by late in the week; however, fires in the Tonto National Forest claimed the lives of six fire fighters, and a large wild fire near Santa Barbara, CA caused more than \$500 million in property damage. Farther east, record heat continued as Valentine, NE reached 114°F, setting an all-time record, and Erie, PA greeted Independence Day with a 99°F reading, a July record. Meanwhile, as cooler air continued to slowly drift southward from the Great Lakes and New England, heavy thunderstorms pelted parts of Wisconsin with golfball-sized hail while portions of northern Vermont were inundated with more than 3.5 inches of rain during Wednesday.

Late in the week, triple-digit readings invaded the mid-Atlantic and Southeast just before the cooler air to the north finally pushed southward through most of the Eastern Seaboard. Strong thunderstorms straddled the leading edge of the cooler air as it pushed southward, accompanied by wind gusts to 70 mph in Virginia, golfball-sized hail in parts of West Virginia, Maryland, and New Jersey, and deluging rains falling at a rate of 2 or 3 inches per hour at isolated Delaware locations. In addition, numerous thundershowers developed along the west-central Gulf Coast, dumping more than 1.5 inches of rain during Thursday on coastal locations in eastern Texas and adjacent Louisiana.

By the week's end, hot weather again invaded the Southeast while record cool conditions settled into the northern mid-Atlantic. Warm air in the central Plains also began to push northward, generating intense thunderstorms across the upper Mississippi Valley. Unofficial reports indicated that isolated

locations in Minnesota measured up to 10 inches of rain during Saturday while the continuing monsoonal thundershowers dropped relatively large amounts of rain on portions of the desert Southwest and southern Rockies. Daily rainfall totals exceeded an inch in a few locations. Despite the cooler weather and helpful rains, fire potentials remain very high in the Southwest, and most of the western half of the country has at least a moderate potential for wild fires (see Special Climate Summary).

Hot and dry weather combined with low humidities to promote large forest fires, not just in the Southwest but in Alaska as well. Several inland locations, including Fairbanks and Bettles, recorded temperatures above 90°F while Nome recorded an all-time high of 82°F. In addition, gusty winds helped the fires spread rapidly as nearly half a million acres were burning at one time. Tok, a small town southeast of Fairbanks, had to be evacuated when a wild fire came within one-quarter mile of the village. Seasonable temperatures accompanied exceptionally dry weather throughout Hawaii.

According to the River Forecast Centers, isolated heavy rains fell in many parts of the nation, but very few areas received widespread moderate or heavy amounts (more than 4 inches). Among the exceptions were southeastern Minnesota, the southeastern third of Florida, northern Vermont, and extreme western portions of central Arizona (Table 1). In addition, scattered locations in Arizona, across the central Rockies and extreme northern Great Plains, along the west-central Gulf Coast, across northern Florida, and along the central and southern portions of the Appalachians and mid-Atlantic recorded between 2 and 4 inches. Light to moderate totals were measured throughout the middle and upper Mississippi Valley, the western Great Lakes, most of the southern and central Rockies, the Northeast, the mid-Atlantic, and portions of the Tennessee Valley and Deep South. Little or no rain fell elsewhere, aggravating long-term dryness in the Far West, southern half of the High Plains, northern Rockies, and southern Atlantic Coast.

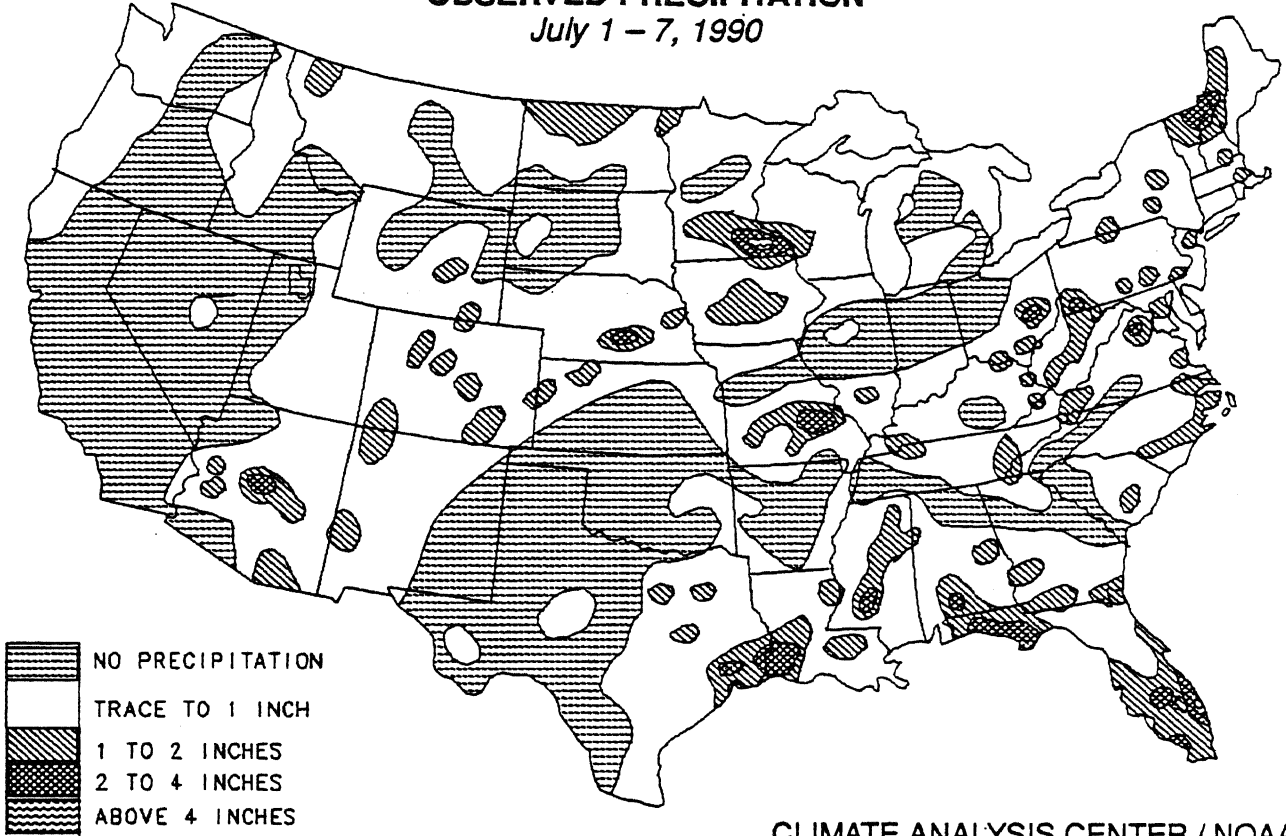
Record-breaking heat trekked slowly across the country from the desert Southwest through the Plains and Midwest eastward to the Atlantic Seaboard, shattering dozens of daily record highs during the week and generating weekly departures of at least +3°F throughout the area. Weekly departures up to +10°F were observed in parts of the central Great Plains (Table 2) as triple-digit temperatures pushed northward to the Canadian border (Figure 1). In contrast, most locations that were avoided by this sprawling mass of hot air observed temperatures near or below normal, with weekly departures below -3°F across parts of the Northeast, in the central Appalachians, and through much of the central and northern Pacific Coast region (Table 3).

TABLE 1. Selected stations with 2.00 or more inches of precipitation for the week.

STATION	TOTAL (INCHES)	STATION	TOTAL (INCHES)
WEST PALM BEACH, FL	3.84	WASHINGTON/ANDREWS AFB, MD	2.45
MINOT, ND	3.49	WILMINGTON, DE	2.43
MELBOURNE, FL	3.18	KODIAK, AK	2.40
APALACHICOLA, FL	3.00	DAYTONA BEACH, FL	2.23
MT. WASHINGTON, NH	2.65	ROCHESTER, MN	2.20
VALPARAISO/EGLIN AFB, FL	2.64	LAKE CHARLES, LA	2.19
VERO BEACH, FL	2.63	PANAMA CITY/TYNDALL AFB, FL	2.13
JACKSONVILLE, FL	2.57	GALVESTON, TX	2.11
HOMESTEAD AFB, FL	2.50	ZANESVILLE, OH	2.10
CAPE CANAVERAL AFS, FL	2.47	HOUSTON, TX	2.03

### OBSERVED PRECIPITATION

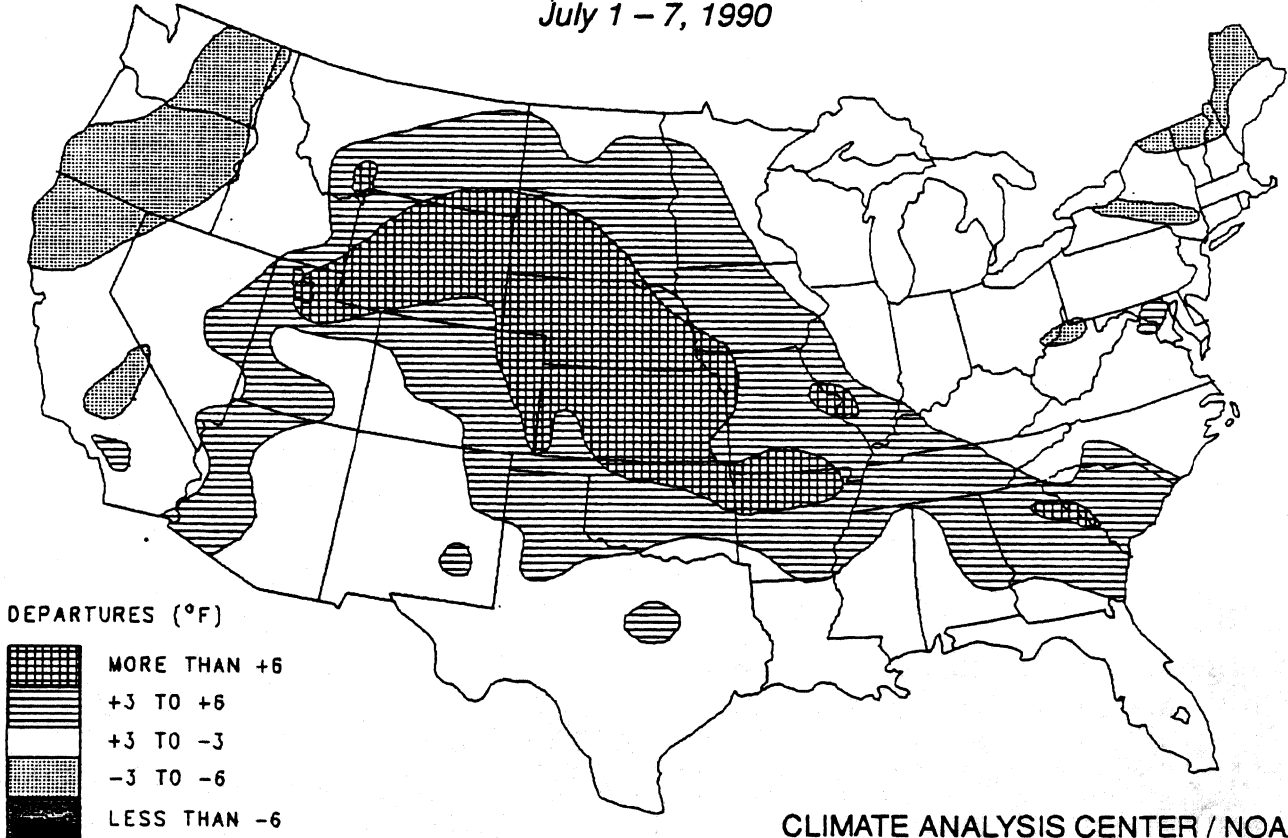
July 1 - 7, 1990



CLIMATE ANALYSIS CENTER / NOAA

### DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

July 1 - 7, 1990



CLIMATE ANALYSIS CENTER / NOAA

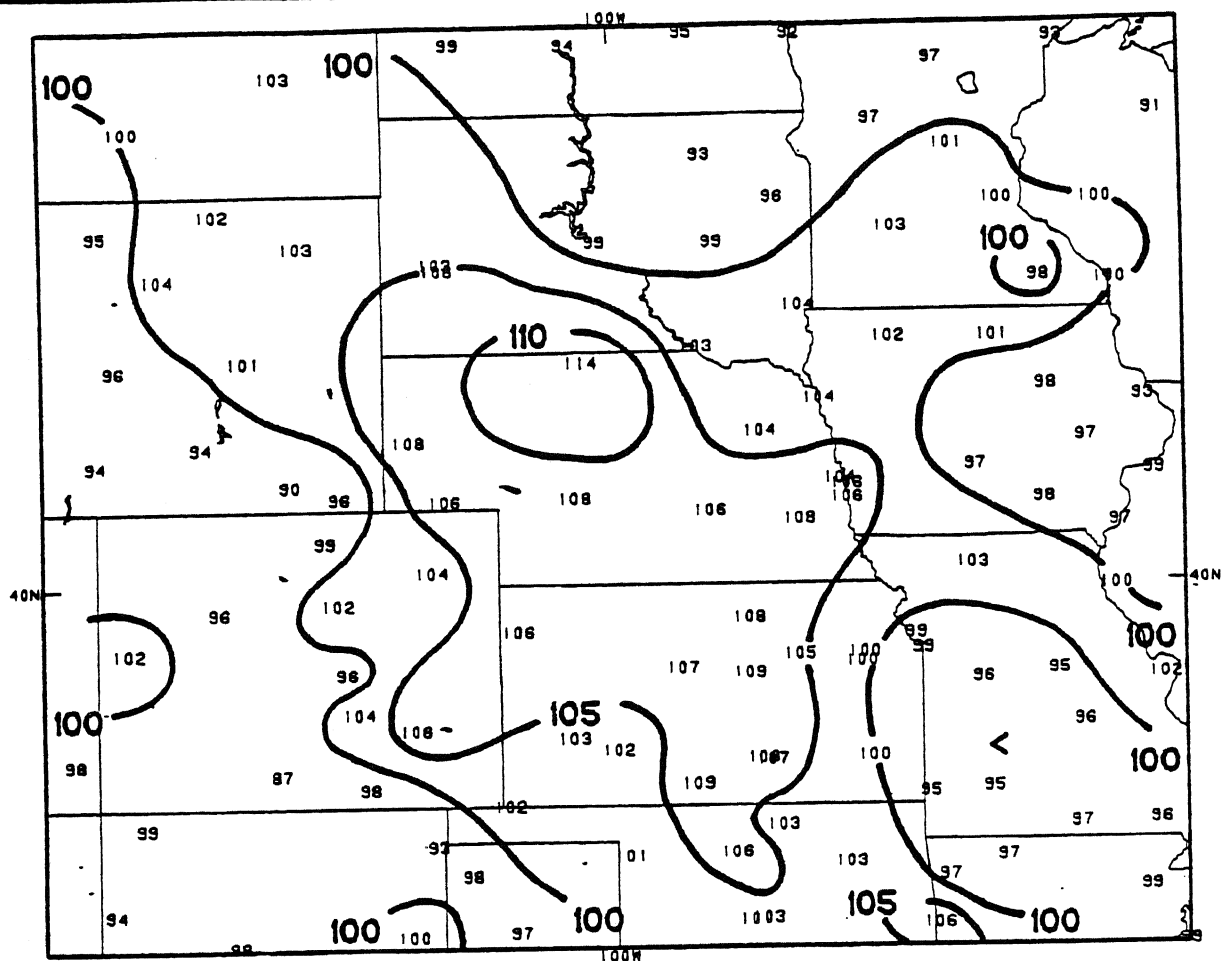


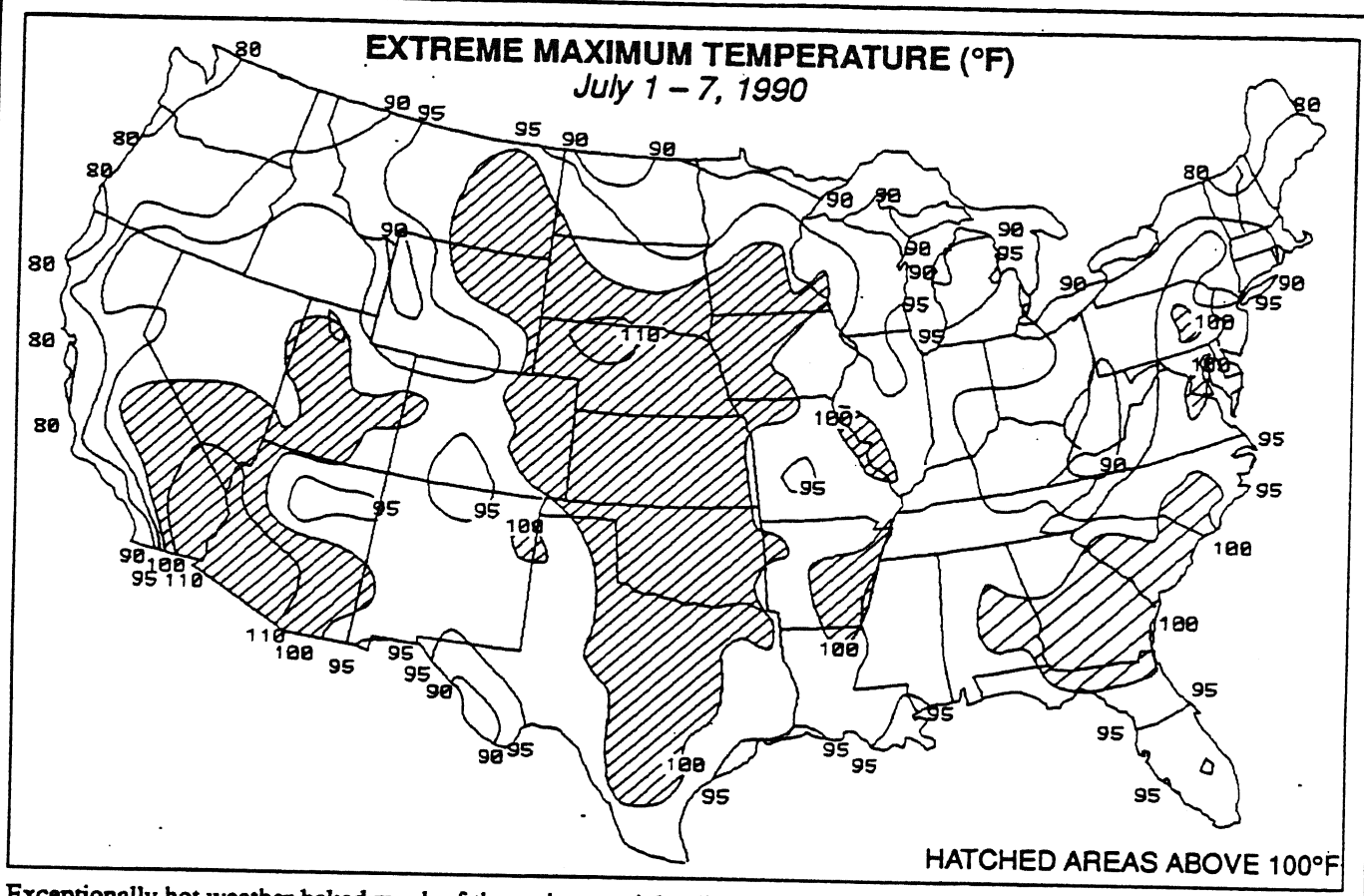
Figure 1. Extreme maximum temperatures ( $^{\circ}\text{F}$ ) during the week of July 1-7, 1990. Isotherms are only drawn for  $100^{\circ}\text{F}$ ,  $105^{\circ}\text{F}$ , and  $110^{\circ}\text{F}$ . The dome of hot air that covered much of the Southwest the previous week slipped northeastward into the nation's midsection this week, sending temperatures well into the one hundreds and setting dozens of new daily maximum temperature records. Even normally cool Minnesota reached triple-digits, and Valentine, NE easily shattered its all-time highest reading with  $114^{\circ}\text{F}$ . Late in the week, the heat reached eastward and sizzled portions of the mid-Atlantic and southern New England.

TABLE 2. Selected stations with temperatures averaging  $7.0^{\circ}\text{F}$  or more ABOVE normal for the week.

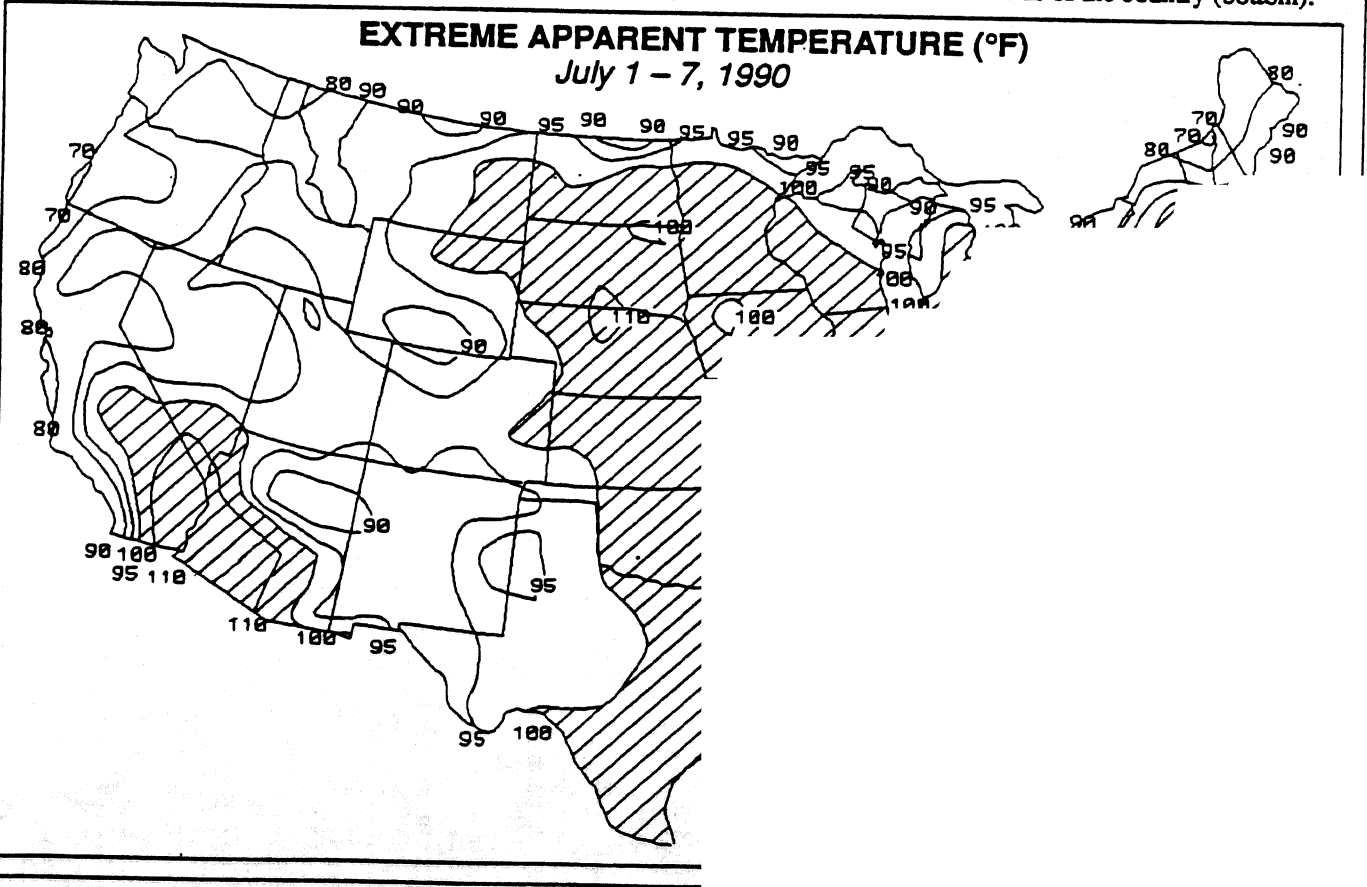
STATION	DEPARTURE ( $^{\circ}\text{F}$ )	AVERAGE ( $^{\circ}\text{F}$ )	STATION	DEPARTURE ( $^{\circ}\text{F}$ )	AVERAGE ( $^{\circ}\text{F}$ )
KOTZEBUE, AK	+14.1	65.0	TULSA, OK	+6.2	90.2
NOME, AK	+12.1	61.5	MCGRATH, AK	+6.2	66.5
FAIRBANKS, AK	+10.6	72.5	VALENTINE, NE	+7.9	81.1
SALINA, KS	+10.2	89.8	LANDER, WY	+7.9	76.8
BETTLES, AK	+10.2	70.5	SCOTTSBLUFF, NE	+7.7	80.6
BLITHEVILLE AFB, AR	+9.6	90.3	CASPER, WY	+7.7	76.8
WICHITA, KS	+9.5	89.9	JUNEAU, AK	+7.6	62.7
CONCORDIA, KS	+9.5	87.8	ST. LOUIS, MO	+7.4	85.7
RAPID CITY, SD	+9.4	80.3	SHERIDAN, WY	+7.4	75.3
GOODLAND, KS	+8.8	83.6	BIG DELTA, AK	+7.4	67.5
NORTH PLATTE, NE	+8.8	81.9	BARTER ISLAND, AK	+7.4	46.3
RUSSELL, KS	+8.6	87.6	WORLAND, WY	+7.2	77.6
OGDENHILL AFB, UT	+8.5	81.7	ROCK SPRINGS/SWEETWATER, WY	+7.1	73.5
LINCOLN, NE	+8.3	84.9			

TABLE 3. Selected stations with temperatures averaging  $3.0^{\circ}\text{F}$  or more BELOW normal for the week.

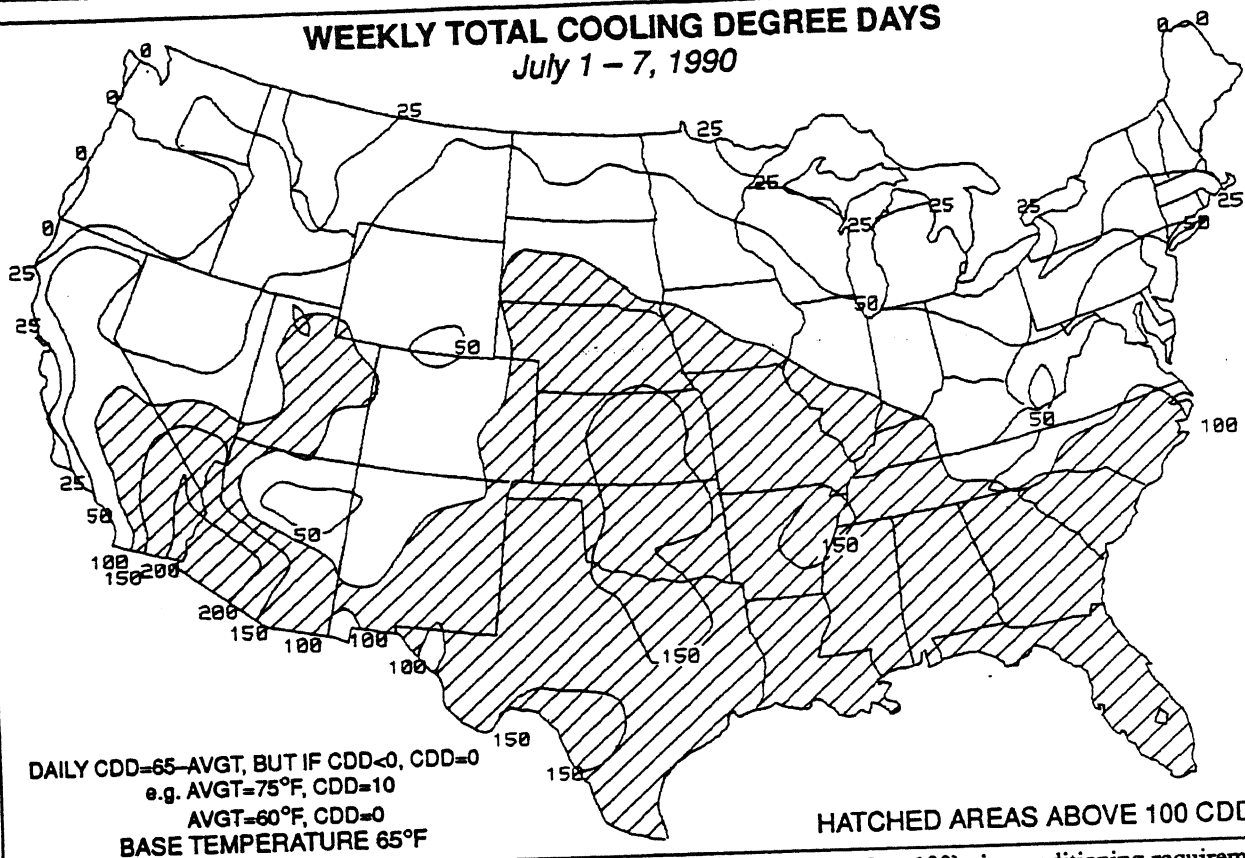
STATION	DEPARTURE ( $^{\circ}\text{F}$ )	AVERAGE ( $^{\circ}\text{F}$ )	STATION	DEPARTURE ( $^{\circ}\text{F}$ )	AVERAGE ( $^{\circ}\text{F}$ )
SEXTON SUMMIT, OR	-7.0	56.0	MASSENA, NY	-3.9	64.4
BURNS, OR	-7.0	60.4	MEDFORD, OR	-3.9	66.9
BLUE CANYON, CA	-5.9	60.6	BAKERSFIELD, CA	-3.8	79.4
REDDING, CA	-5.8	76.4	SPOKANE, WA	-3.6	64.2
PENDLETON, OR	-5.4	66.6	BAKER, OR	-3.5	61.6
HOULTON, ME	-4.5	60.8	BURLINGTON, VT	-3.5	65.3
MT. WASHINGTON, NH	-4.4	43.7	CUT BANK, MT	-3.4	59.1
CARIBOU, ME	-4.2	60.2	YAKIMA, WA	-3.4	65.6
WENATCHEE, WA	-4.2	66.1	BINGHAMTON, NY	-3.2	64.9
WALLA WALLA, WA	-4.2	69.1	POUGHKEEPSIE, NY	-3.1	68.3
RED BLUFF, CA	-4.1	77.0			



Exceptionally hot weather baked much of the nation as triple-digit temperatures afflicted the Southwest, central Rockies, Plains, and south Atlantic coast as well as portions of the Mississippi Valley and mid-Atlantic (top). In addition, high humidities helped to generate oppressive apparent temperatures across much of the eastern two-thirds of the country (bottom).

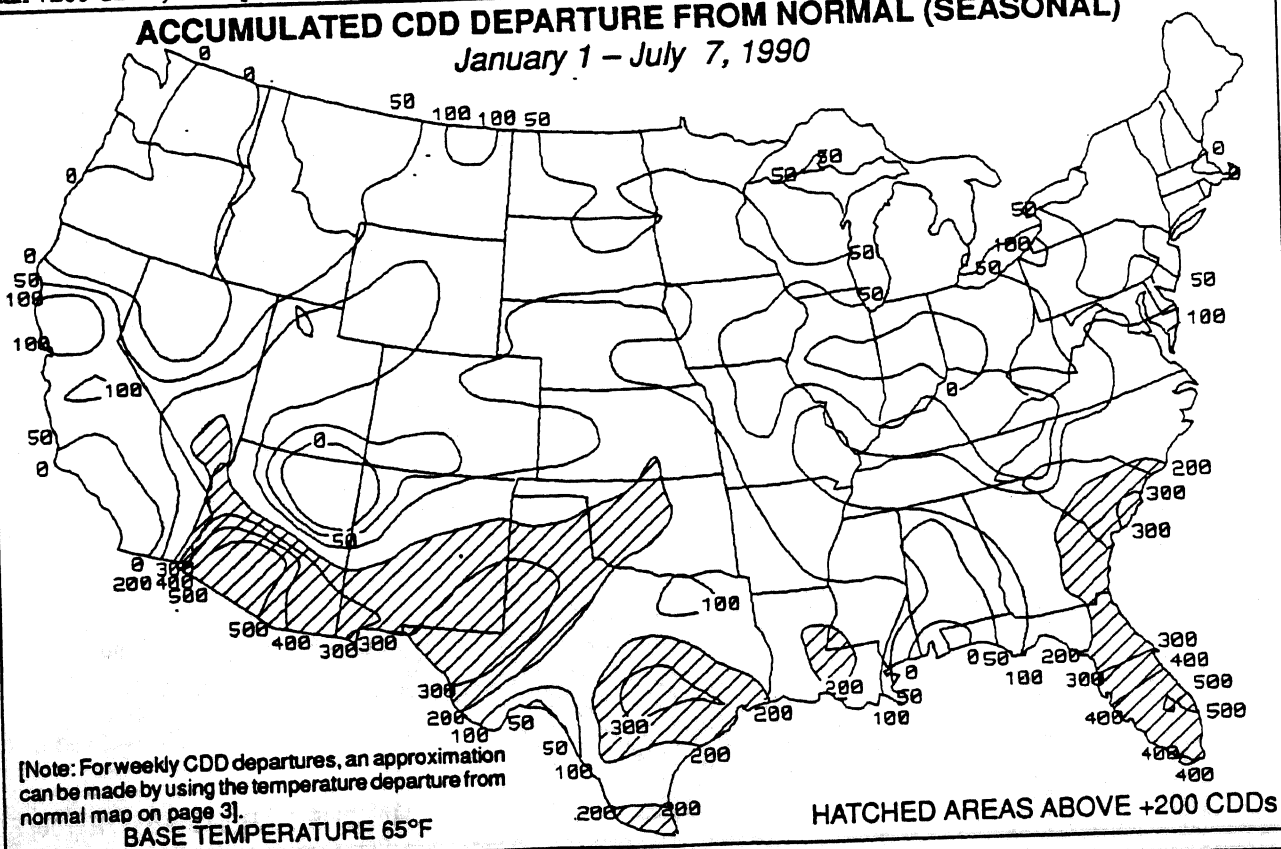


## WEEKLY TOTAL COOLING DEGREE DAYS July 1 - 7, 1990



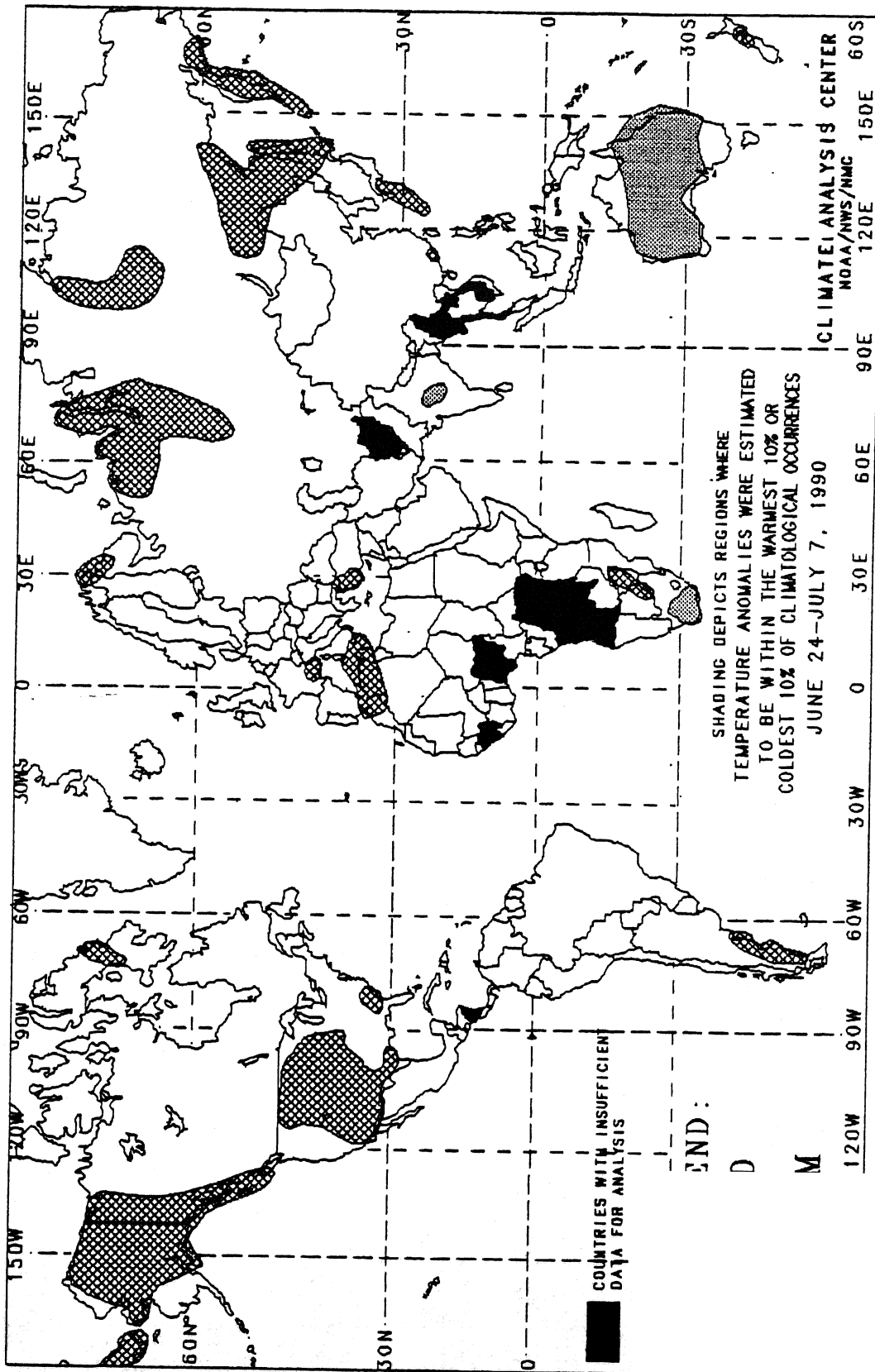
Another week of hot weather, especially in the central U.S., produced large (CDD > 100) air-conditioning requirements throughout the southern half of the country (top). Since January 1, most of the nation, with the exception of the Northwest, Northeast, and central Ohio Valley, have accumulated above normal cooling demand. The greatest seasonal departures (more than +200 CDDs) are depicted by shading (bottom).

## ACCUMULATED CDD DEPARTURE FROM NORMAL (SEASONAL) January 1 - July 7, 1990



# GLOBAL TEMPERATURE ANOMALIES

2 WEEKS



In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

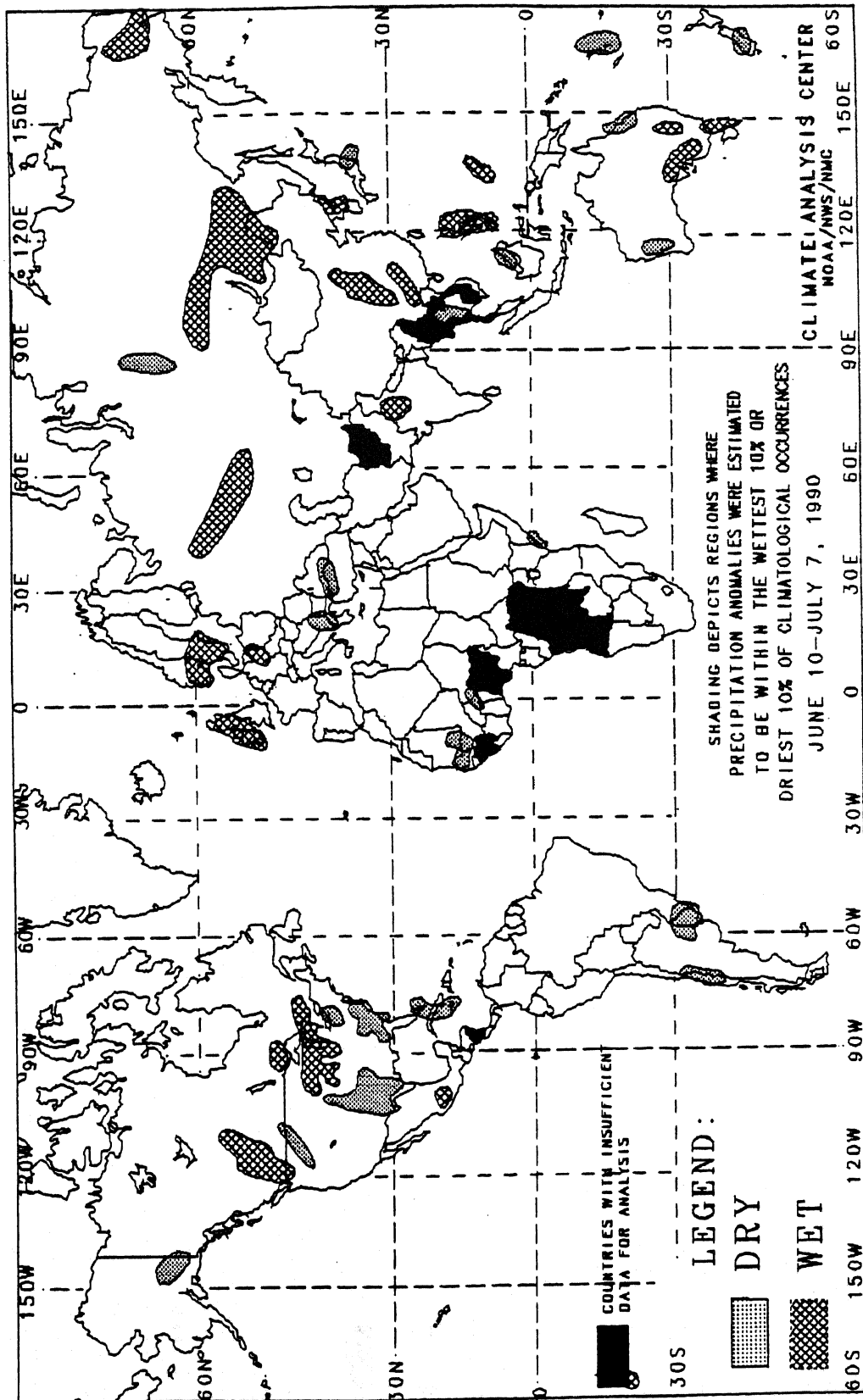
This chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

Chart are based on approximately 2500 observing stations temperature observations were received from synoptic operate on a twenty-four hour basis so many night time as a result of these missing observations the estimated ave a warm bias. This in turn may have resulted in an f some warm anomalies.

are not depicted unless the magnitude of temperature ds 1.5°C.

# GLOBAL PRECIPITATION ANOMALIES

4 WEEKS



In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

# **SPECIAL CLIMATE SUMMARY**

*CLIMATE ANALYSIS CENTER, NMC  
NATIONAL WEATHER SERVICE, NOAA*

## **FIRE SEVERITY POTENTIAL FOR JULY 6 TO AUGUST 2, 1990**

*Fire and Aviation Management, U.S.D.A.  
Forest Service, Washington, D.C.*

*Contact: Roger Eubanks, Phone: (202) 453-9492*

**NORTHERN** – Potential: Medium to High. Temperatures have been above normal with normal precipitation. Palmer Drought Index (PDI) reflects isolated pockets of severe to extreme drought. 1000-hour timelag fuels (THTLF) are in the mid-teens, which are 20% below normal. Long range forecast indicates above normal temperatures with below normal precipitation. Expect normal fire activity.

**ROCKY MOUNTAIN** – Potential: Medium to Extreme. Temperatures have been above normal with below normal precipitation. PDI reflects severe to extreme drought in Colorado and Wyoming. THTLF are 6-14%, which are 40% below normal. Long range forecast indicates above normal temperatures in Colorado and Wyoming with near normal for the remainder of the area. Above normal precipitation is expected in southern Colorado with below normal precipitation expected in Wyoming and near normal in the remainder of the area. Expect increased fire activity.

**SOUTHWEST** – Potential: High to Extreme. Temperatures have been above normal with normal precipitation. PDI reflects extreme drought in northern Arizona with severe conditions in southern Arizona and western New Mexico. THTLF are 5-7%, which are 20% below normal. Long range forecast indicates above normal temperatures and precipitation. Extreme fire potential will moderate with the onset of the monsoons. Expect normal fire activity.

**GREAT BASIN** – Potential: Medium to Extreme. Temperatures have been below to near normal with above normal precipitation. PDI reflects severe to extreme drought throughout the Great Basin. THTLF are normal to above normal. Long range forecast indicates above normal temperatures, and above normal precipitation in southern Utah with near to below normal elsewhere. Expect increased fire activity.

**CALIFORNIA** – Potential: Medium to Extreme. Temperatures have been above normal in the northern half with above normal temperatures in the southern half and below normal in the south. PDI indicates severe to extreme drought in the south. Long range forecast indicates above normal temperatures and below normal precipitation. Expect normal fire activity in the north with increasing activity in the south.

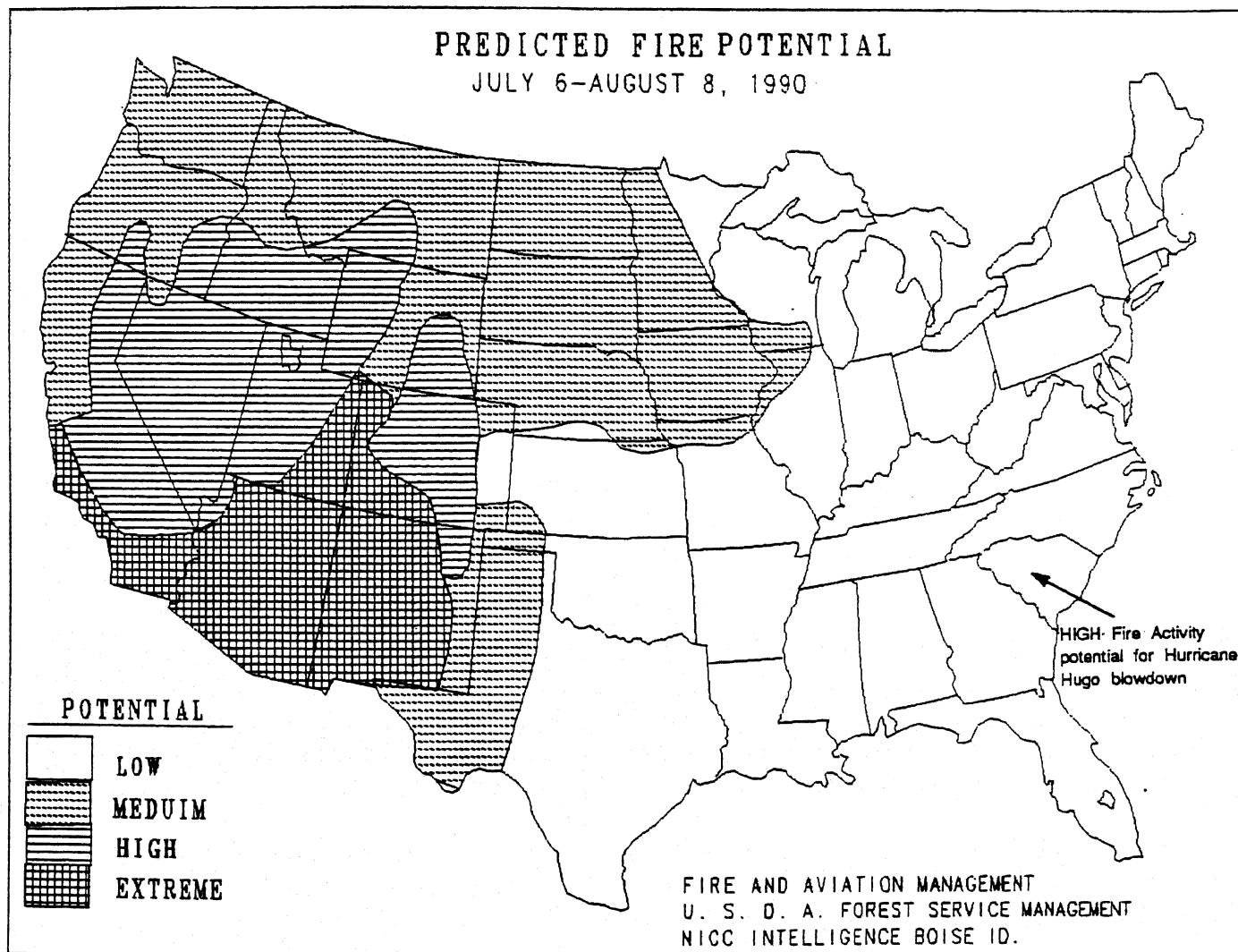
**NORTHWEST** – Potential: Medium to High. Temperatures have been below normal with above normal precipitation. PDI reflects severe to extreme drought. THTLF are normal. Long range forecast indicates above normal temperatures and normal precipitation. Expect normal fire activity.

**SOUTHEAST** – Potential: Low. Temperatures have been above normal with below normal precipitation. PDI indicates severe and extreme drought in southern Florida, Georgia, and South Carolina. Long range forecast indicates near to above normal temperatures and near normal precipitation. Expect normal fire activity. Hurricane Hugo blowdown has the potential for high fire activity.

**NORTHEAST** – Potential: Low. Temperatures have been normal with above normal precipitation. PDI reflects no drought conditions. Long range forecast indicates near to below normal temperatures and near to above normal precipitation. Expect minor fire activity.

**ALASKA** – Potential: Medium to Extreme. Temperatures have been above normal with below normal precipitation. This temperature/precipitation trend is expected to continue. Expect increased fire activity.

*Prepared: July 5, 1990 by NICC Intelligence Section*



# UNITED STATES MONTHLY CLIMATE HIGHLIGHTS

JUNE 1990

After the first week of June 1990, it appeared as though the month would mimic May, which had relatively cool, wet, and stormy weather. During the remainder of the month, however, record and near-record heat and minimal precipitation characterized June as an extremely dry and warm month, although some parts of the country, particularly the middle and upper Mississippi Valley, experienced excessive rainfall. Nationally, this was the third driest and eighth warmest June on record (following the sixth wettest and tenth coolest May). Another trademark of this June was the numerous severe weather outbreaks, especially early in the month, which produced more than 10 tornadoes (versus a normal of 150). Through the first six months of 1990, a record 935 twisters have been reported (Figure 1).

Early in the month, devastating tornadoes battered the Texas Panhandle and the Midwest. On June 2, over 10 twisters, most of them in Indiana and Illinois, killed several people, injured hundreds, and left 24 cities in 15 counties with significant damage. During the next week, the towns of Limon, CO and Emporia, KS were struck by tornadoes, the latter on two consecutive days. Across most of the western Corn Belt and upper Midwest, heavy rain from thunderstorms erased long-term dryness but also produced localized flooding. Rare June rains from the remnants of Hurricane Boris brought record June precipitation to San Diego, CA and Las Vegas, NV. In extreme eastern Ohio, a stationary thunderstorm dumped 5.5 inches of rain within 3 1/2 hours near Ladyside, OH. This intense rainfall, coupled with already high streamflow levels in the Pipe and Weegee creeks, produced a wall of water, 20 feet high at times, that swept through the town and neighboring counties. Nearly 500 homes were damaged, 26 individuals were killed, and 7 additional people were missing and presumed drowned.

During the latter half of June, most sections of the country experienced hot and dry weather with the exception of the middle and upper Mississippi Valley, New England, and southern Florida, where thunderstorms dropped generous June rainfall. A large dome of high pressure located over the southern Rockies kept much of the Southwest and High Plains extremely hot and dry. Late in the month, several cities, such as Phoenix, AZ (122°F), downtown Los Angeles, CA (112°F), and Pueblo, CO (108°F) set all-time record highs. The combination of long-term drought, high temperatures, low humidities, and gusty winds aided numerous wildfires in the Southwest. Six firefighters lost their lives battling the 28,000 acre Tonto National Forest fire in Arizona, and wild fires near Santa Barbara, CA caused over \$500 million in property damage. Fortunately, favorable weather conditions by July helped firefighters extinguish or contain most of the blazes; however, even larger fires broke out in interior Alaska.

According to the River Forecast Centers, the greatest monthly totals (more than 8 inches) were found across much of Iowa, western Illinois, southeastern Minnesota, and at isolated locations in the southern half of Florida, western Missouri, eastern Kansas and Nebraska, and central Wisconsin (Table 1). Unlike May, where much of the U.S. recorded surplus precipitation, above normal June rainfall was limited to the middle and upper Mississippi Valley and portions of New England, Florida, the central Gulf Coast, southern Rockies, southern California and the Great Basin, and the Pacific Northwest (Figures 2 and 3). Regionally, only the East-North Central (MN, WI, IA, MI) was significantly wet as it recorded its sixth wettest June ever. Since March, precipitation in the corn and soybean belts has ranked as the fourth wettest period on record, quite a change from the last several years (Figure 8).

In sharp contrast, the remainder of the nation observed below normal monthly precipitation. Areas with less than half the normal June rainfall included the central and southern High Plains, the northern Rockies, and the southern Atlantic Coast states, the latter region recording its sixth straight month of subnormal precipitation (Table 2, Figures 2 and 3). Regionally, the Southeast, South, and Southwest had the second, fifth, and thirteenth driest June since 1895, respectively, which led to the third driest June nationally. In May 1988, the areal percent of the U.S. experiencing severe to extreme drought surpassed 22% (Figure 7). Since then, the overall national drought area has remained at or exceeded this value, making the past 26 months the second such longest time in this century that the U.S. has been afflicted by such a large drought area (page 22).

After a relatively cool May, most of the country recorded above normal temperatures during June. The greatest departures (more than +4°F) occurred in the southern Rockies and Plains and in parts of Alaska (Table 3, Figures 4 and 5). F

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**TEMPERATURE AND PRECIPITATION RANKINGS FOR JUNE 1990, BASED ON THE PERIOD 1895 – 1990 (96 YEARS) WHERE 1 = DRIEST/COLDEST AND 96 = WETTEST/HOTTEST.**

<u>REGION</u>	<u>PRECIPITATION</u>	<u>TEMPERATURE</u>
NORTHEAST	52	54
EAST NORTH CENTRAL	91	65
CENTRAL	68	54
SOUTHEAST	2	62
WEST NORTH CENTRAL	41	69
SOUTH	5	93
SOUTHWEST	13	96
NORTHWEST	48	53
WEST	46	75
NATIONAL	3	89

*National Climatic Data Center*

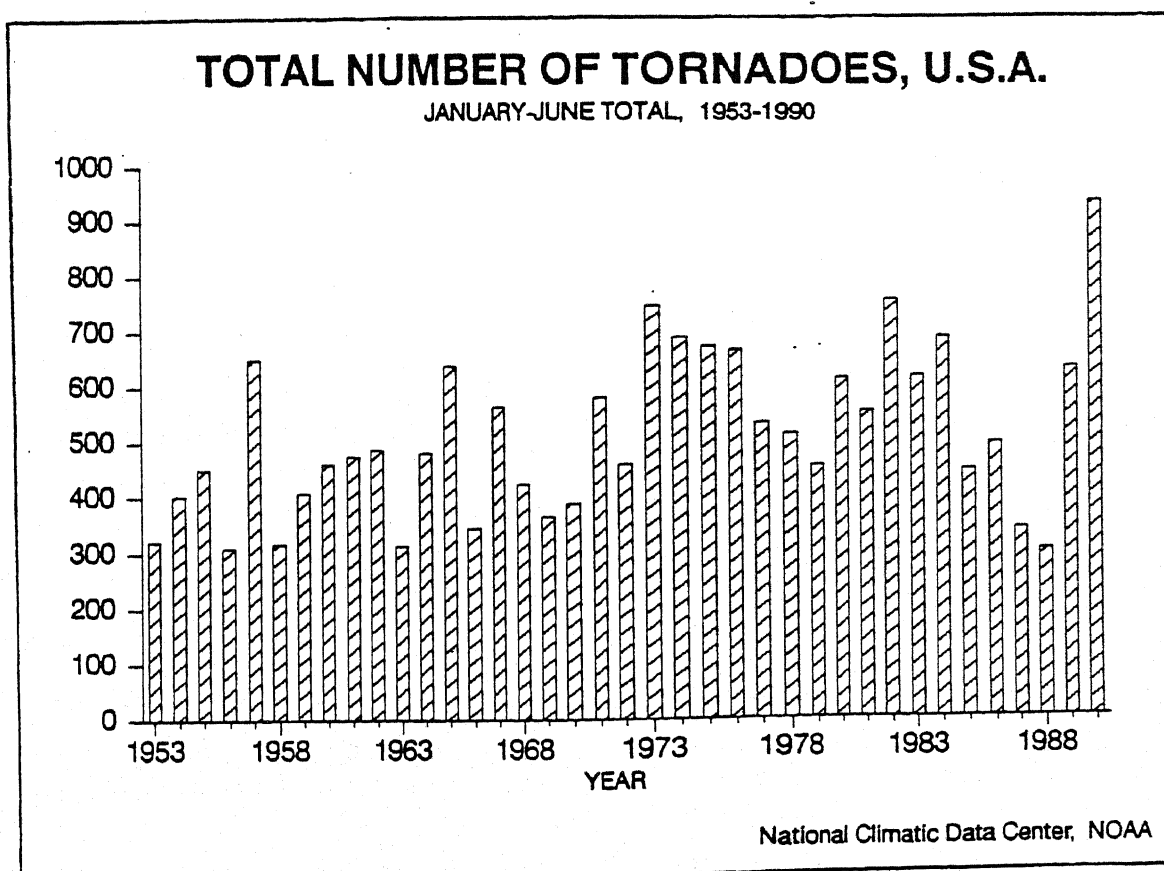
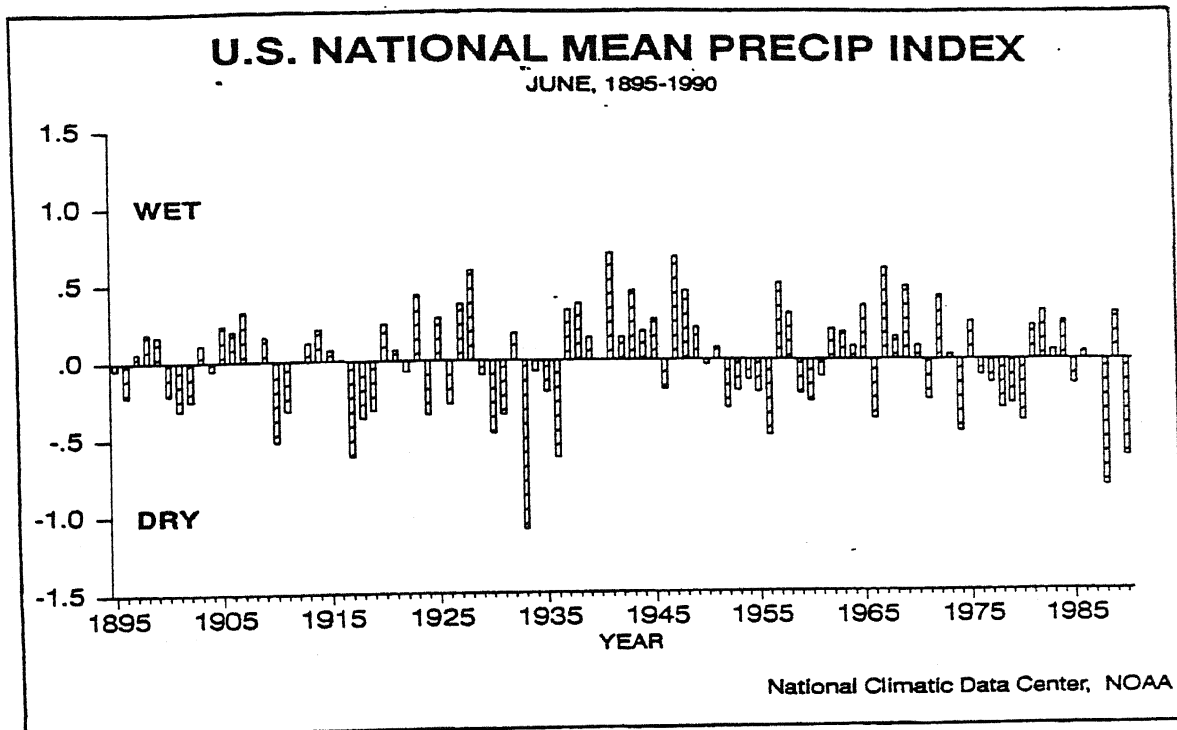
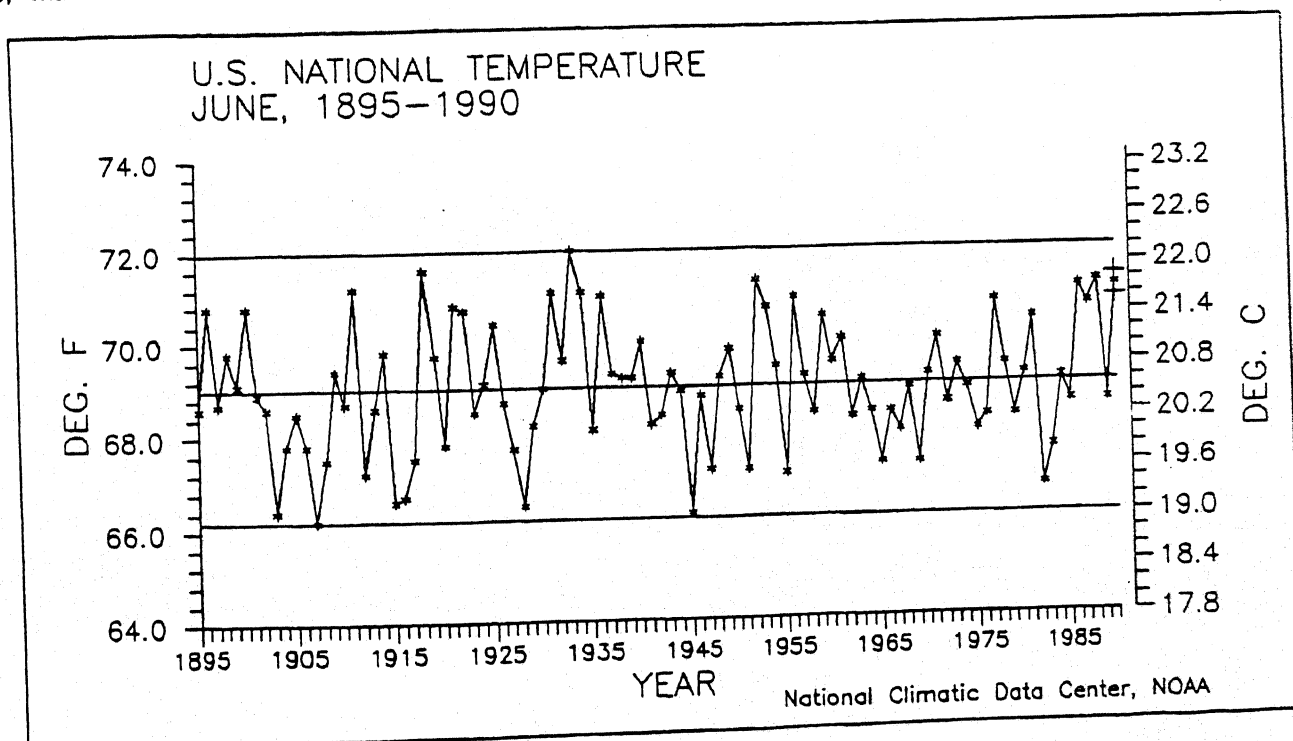


Figure 1. Total number of tornadoes in the U.S. during January-June, 1953-1990. According to preliminary data from the National Weather Service, there were 412 twisters this June (compared to the June average of 150), and the January-June 1990 total of 935 is a record (compared to the Jan.-June average of 502).



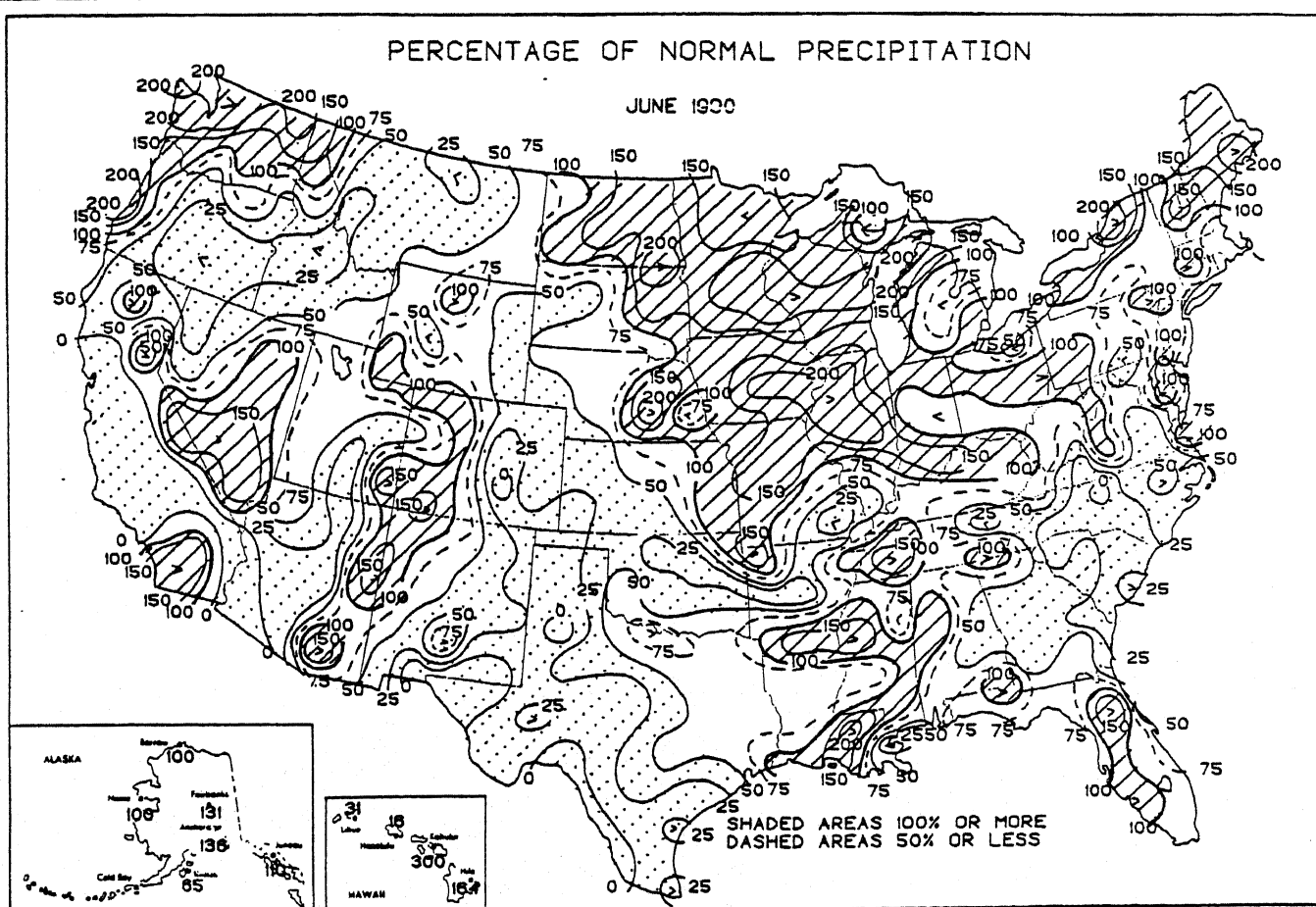
U.S. National June 1990 mean precipitation index (top) and temperature (bottom). The monthly precipitation for each climate division in the country (total of 344) was first standardized over the 1951-1980 period, then weighed by area and averaged to determine a national standardized precipitation value. Negative (positive) values are dry (wet). Based upon the index, the **June 1990 precipitation was MUCH BELOW** the long-term mean (the 3rd driest June during the past 96 years). Regionally, only the East-North Central recorded significant June precipitation, ranking as the 6th wettest June ever. In contrast, most of the other regions observed slightly to much below normal June precipitation, especially the South (5th driest) and Southeast (2nd driest). Across the contiguous U.S., **June 1990 temperatures averaged MUCH ABOVE** the long-term mean, ranking as the 8th warmest June on record (since 1895). Very few areas in the lower 48 states observed subnormal June temperatures. The greatest departures (more than +6°F) were found in southern Arizona and the southern High Plains, with the Southwest and South regions recording the first and fourth warmest June ever, respectively.



**TABLE 1. SELECTED STATIONS WITH MORE THAN 150% OF NORMAL PRECIPITATION AND MORE THAN 6 INCHES OF PRECIPITATION; OR, STATIONS WITH MORE THAN 8 INCHES OF PRECIPITATION AND NO NORMALS DURING JUNE 1990.**

STATION	TOTAL (INCHES)	PCT. OF NORMAL	STATION	TOTAL (INCHES)	PCT. OF NORMAL
ST. CLOUD, MN	10.52	218.7	WATERLOO, IA	7.98	186.0
CEDAR RAPIDS, IA	10.30	232.0	TAMPA/MAC DILL AFB, FL	7.83	***
GREEN BAY, WI	10.29	326.7	ABERDEEN, SD	7.72	241.2
GAINESVILLE, FL	10.10	150.3	NORFOLK, NE	7.64	176.4
HILO/LYMAN, HAWAII, HI	10.04	164.3	FAYETTEVILLE, AR	7.21	159.5
MINNEAPOLIS, MN	9.82	242.5	COLUMBIA, MO	7.20	194.6
MOLINE, IL	9.59	223.0	BATON ROUGE, LA	7.15	229.9
DES MOINES, IA	9.52	229.4	TRAVERSE CITY, MI	6.93	220.0
ROCHESTER, MN	9.27	246.5	REDWOOD FALLS, MN	6.75	178.1
ROCKFORD, IL	9.24	202.6	QUILLAYUTE, WA	6.56	234.3
SPRINGFIELD, IL	9.22	261.9	WAUSAU, WI	6.56	166.9
BURLINGTON, IA	9.22	174.9	WATERTOWN, SD	6.43	162.4
KNOB NOSTER/WHITEMAN AFB, MO	8.90	***	HURON, SD	6.34	192.7
EAU CLAIRE, WI	8.44	193.1	GREENWOOD, MS	6.32	188.7
GRAND ISLAND, NE	8.21	221.9	LOUISVILLE, KY	6.13	171.2
PEORIA, IL	7.99	205.9	FARGO, ND	6.05	199.0

(Note: Stations without precipitation normals are indicated by asterisks.)



**Figure 2. June 1990 percent of normal precipitation.** Hatched areas observed above normal June precipitation while dotted areas recorded less than half the normal June precipitation. With the exception of the Pacific Northwest, the upper and middle Mississippi Valley, and extreme northern New England, most of the country experienced relatively dry weather during June. Regionally, the Southeast and South recorded the 2nd and 5th driest June ever, respectively; however, the West-North Central had its 6th wettest June on record. Nationally, this was the 3rd driest June since 1895 based upon the standardized precipitation method.

**TABLE 2. SELECTED STATIONS WITH LESS THAN 33% OF NORMAL PRECIPITATION AND NORMAL PRECIPITATION 3.00 INCHES OR MORE DURING JUNE 1990.**

STATION	TOTAL (INCHES)	PCT. OF NORMAL	NORMAL (INCHES)	STATION	TOTAL (INCHES)	PCT. OF NORMAL	NORMAL (INCHES)
GREENSBORO, NC	0.00	0.0	3.91	MACON, GA	0.95	25.5	3.73
AMARILLO, TX	0.14	4.0	3.48	SAVANNAH, GA	0.97	17.1	5.69
PALACIOS, TX	0.33	7.1	4.64	RICHMOND/BYRD, VA	0.97	27.2	3.57
ANDERSON, SC	0.41	11.8	3.47	CHICOPEE/WESTOVER, MA	0.99	25.4	3.90
FLORENCE, SC	0.54	11.6	4.65	NEW ORLEANS/MOISANT, LA	1.01	21.9	4.61
LITTLE ROCK, AR	0.61	16.7	3.65	RALEIGH-DURHAM, NC	1.03	28.3	3.64
GARDEN CITY, KS	0.62	20.2	3.07	COLUMBUS, GA	1.04	25.0	4.16
FORT SMITH, AR	0.63	17.3	3.65	TULSA, OK	1.08	23.7	4.56
ENID/VANCE AFB, OK	0.70	17.5	4.00	BRUNSWICK, GA	1.09	19.0	5.74
DANVILLE, VA	0.72	19.4	3.72	SUMTER/SHAW AFB, SC	1.09	24.0	4.55
VICTORIA, TX	0.82	18.1	4.53	HAMPTON/LANGLEY AFB, VA	1.14	30.5	3.74
ROANOKE, VA	0.83	25.0	3.32	HICKORY, NC	1.17	24.1	4.85
CROSSVILLE, TN	0.86	19.6	4.38	GALVESTON, TX	1.17	33.0	3.55
MONTGOMERY, AL	0.86	25.1	3.43	GOLDSBORO/JOHNSON, NC	1.18	23.7	4.98
MACON/ROBINS AFB, GA	0.88	24.3	3.62	BILOXI/KEESLER AFB, MS	1.19	22.7	5.25
CORPUS CHRISTI, TX	0.89	23.1	3.86	OKLAHOMA CITY, OK	1.25	32.8	3.81
GREENVILLE, SC	0.90	20.6	4.36	COLUMBIA, SC	1.27	28.6	4.44
ASHEVILLE, NC	0.90	24.3	3.70	ALBANY, GA	1.35	31.0	4.36
CHARLOTTE, NC	0.90	25.4	3.55	WAYCROSS, GA	1.40	23.9	5.87
ADAK, AK	0.92	30.3	3.04	JACKSONVILLE, FL	1.59	27.6	5.77
MARTINSBURG, WV	0.93	26.7	3.48	NEW BERN, NC	1.62	31.6	5.13
KEY WEST, FL	0.94	18.5	5.07				

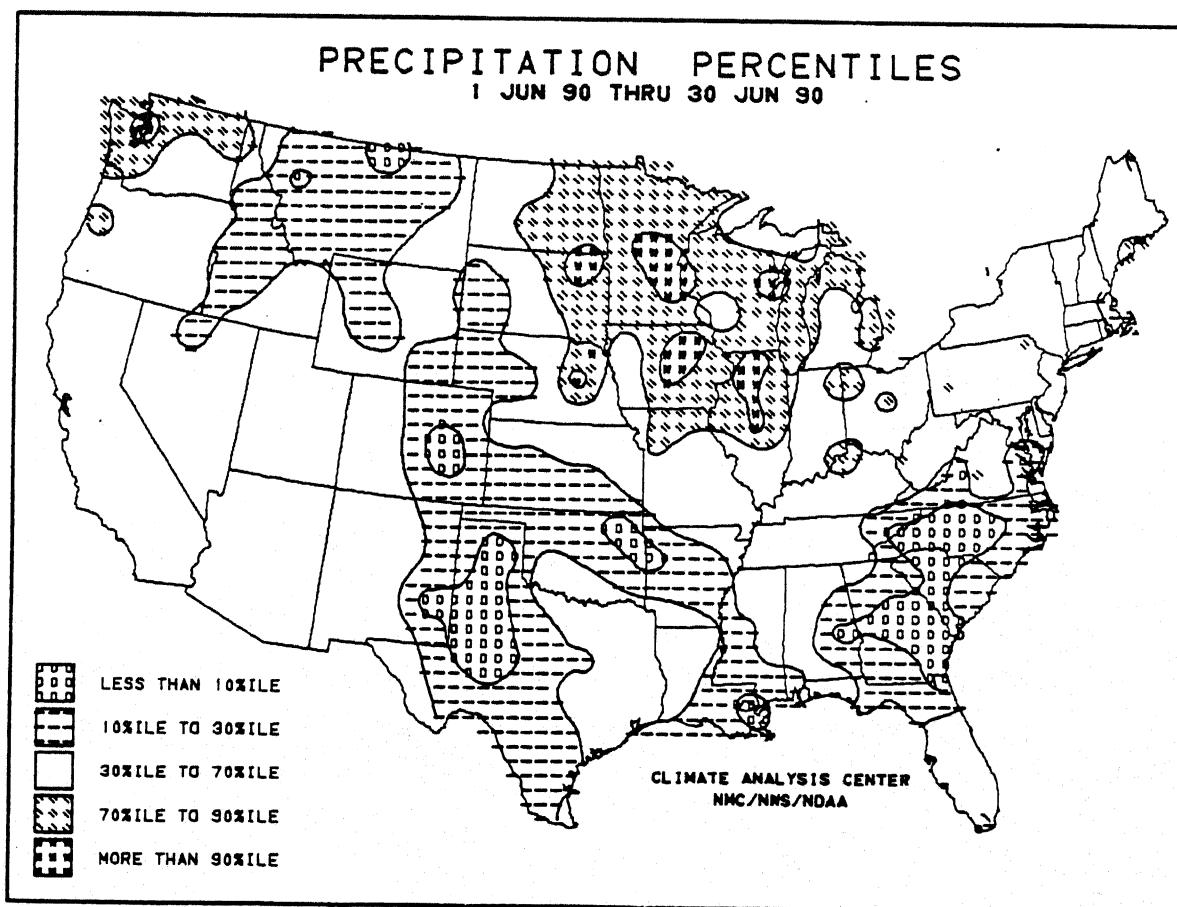
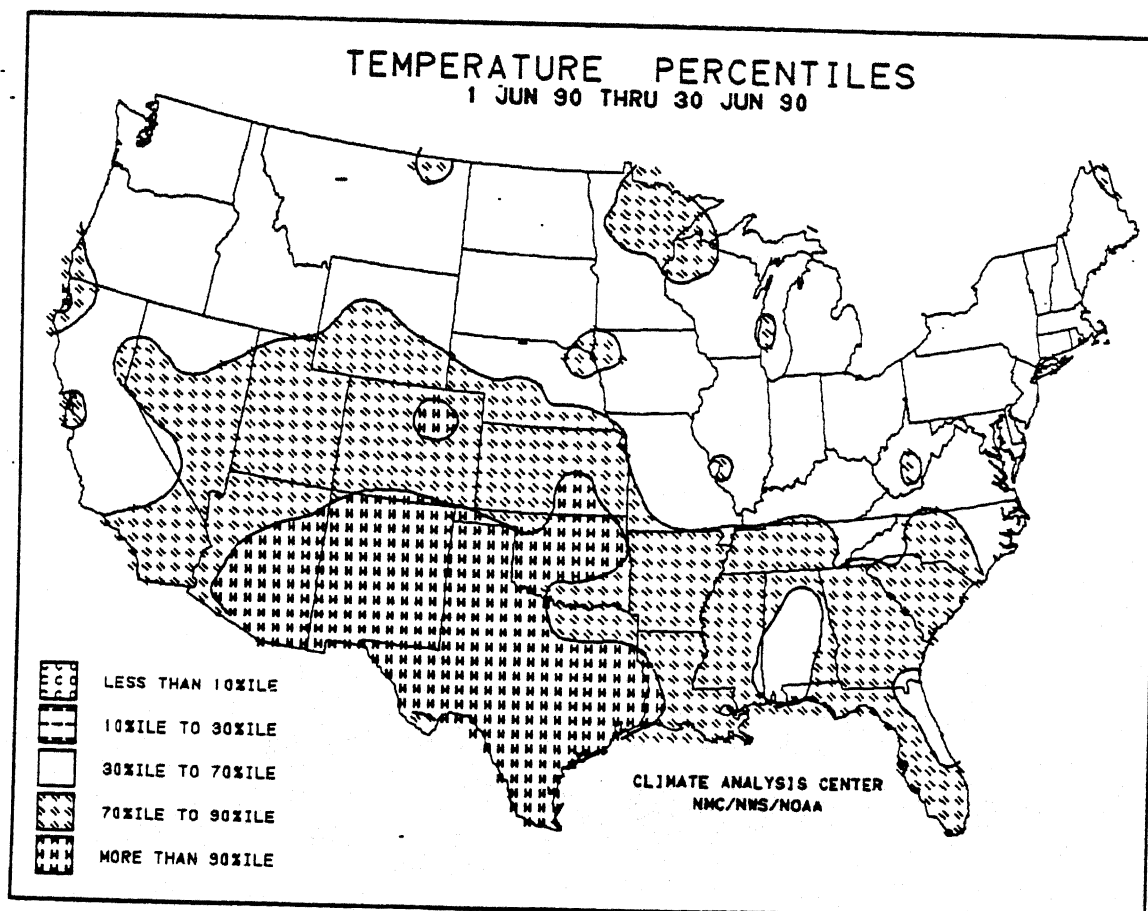


Figure 3. June 1990 precipitation percentiles. After several months of relatively wet conditions in the south-central Great Plains and the Southeast, significant dryness (%ile<30%) covered both of the aforementioned areas and the northern Rockies. In contrast, substantially wet weather (%ile>70%) soaked the Pacific Northwest and the middle and upper Mississippi Valley. Much of the Southwest remained dry as expected during the normally arid summer season.

**TABLE 3. JUNE 1990 AVERAGE TEMPERATURES 4.5°F OR MORE ABOVE NORMAL.**

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
VICTORVILLE/GEORGE AFB, CA	+7.5	78.9	CARLSBAD, NM	+5.6	86.2
PHOENIX, AZ	+7.2	93.7	WICHITA, KS	+5.6	81.7
GLENDALE/LUKE AFB, AZ	+7.1	91.6	PONCA CITY, OK	+5.3	82.5
TUCSON/DAVIS-MONTHAN AFB, AZ	+6.9	88.7	DALHART, TX	+5.3	78.8
ROSWELL, NM	+6.9	85.0	DEMING, NM	+5.2	82.2
LUBBOCK, TX	+6.8	84.4	FLAGSTAFF, AZ	+5.2	64.4
MIDLAND, TX	+6.7	86.5	DOUGLAS, AZ	+5.1	81.9
SAN BERNARDINO/NORTON AFB, CA	+6.6	77.0	OKLAHOMA CITY, OK	+5.0	82.0
AMARILLO, TX	+6.5	81.3	TALKEETNA, AK	+4.9	59.6
PRESCOTT, AZ	+6.5	73.2	ALEXANDRIA/ENGLAND AFB, LA	+4.8	85.2
WINK, TX	+6.2	87.9	TRINIDAD, CO	+4.8	73.9
TUCUMCARI, NM	+6.1	82.4	BARROW, AK	+4.8	38.1
CLOVIS/CANNON AFB, NM	+6.0	80.1	SALINA, KS	+4.7	79.9
END/VANCE AFB, OK	+5.9	83.6	GOODLAND, KS	+4.7	74.5
TUCSON, AZ	+5.8	88.7	FARMINGTON, NM	+4.7	73.8
EL PASO, TX	+5.8	87.1	WACO, TX	+4.5	86.4
DENVER, CO	+5.8	72.7	ABILENE, TX	+4.5	84.9
SAN ANTONIO, TX	+5.6	87.4			



**Figure 4. June 1990 temperature percentiles.** Much of the southern half of the nation reported significant June month (%ile>70%) as record and near-record breaking heat scorched the Southwest and southern Plains during latter half of the month. Regionally, this was the FIRST and FOURTH warmest June during the past 96 years in the Southwest and South, respectively, and slightly above normal temperatures across the rest of the country. Over 48 states led to the 8th warmest June nationally.

**TABLE 4. JUNE 1990 AVERAGE TEMPERATURES 1.0°F OR MORE BELOW NORMAL.**

<u>STATION</u>	<u>DEPARTURE</u> (°F)	<u>AVERAGE</u> (°F)	<u>STATION</u>	<u>DEPARTURE</u> (°F)	<u>AVERAGE</u> (°F)
WENATCHEE, WA	-2.4	65.1	JACKSON, MI	-1.2	66.4
GREAT FALLS, MT	-2.0	59.7	MOUNT SHASTA, CA	-1.1	59.9
REDDING, CA	-1.8	75.0	SPOKANE, WA	-1.1	60.6
SAULT STE. MARIE, MI	-1.5	57.0	AKRON, OH	-1.1	66.7
FINDLAY, OH	-1.5	67.8	UKIAH, CA	-1.1	67.1
SEXTON SUMMIT, OR	-1.4	54.7	BAKERSFIELD, CA	-1.1	77.2
PENDLETON, OR	-1.4	64.8	OLYMPIA, WA	-1.0	57.7
BOSTON/LOGAN, MA	-1.4	66.6	POUGHKEEPSIE, NY	-1.0	66.4
BURNS, OR	-1.2	59.2	MORGANTOWN, WV	-1.0	68.5

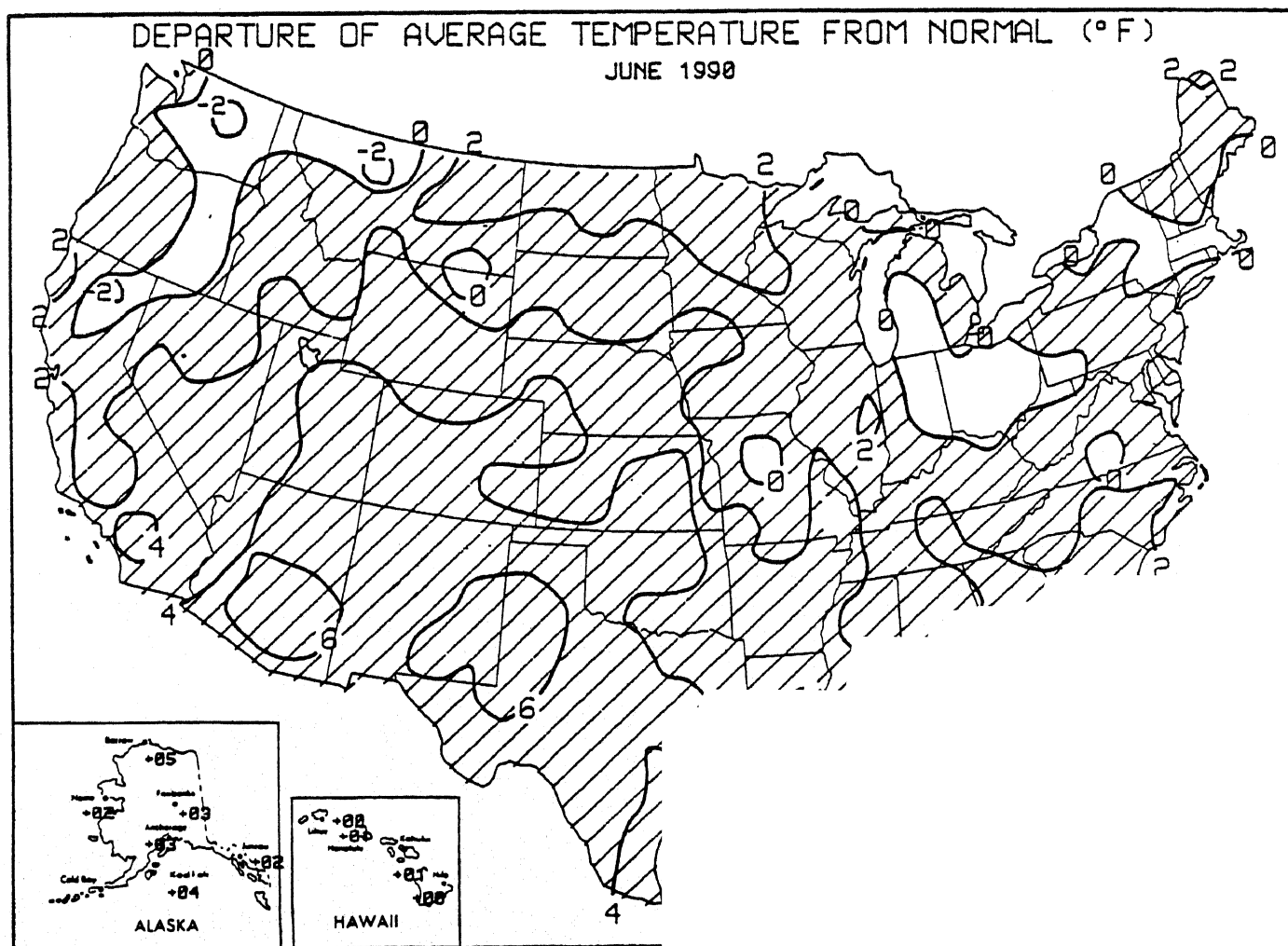


Figure 5. June 1990 average temperature departure from above normal June temperatures, with the largest positive and southern High Plains. In Alaska, unseasonably warm temperatures slightly above normal at most stations.

**TABLE 5. RECORD JUNE PRECIPITATION.**

<u>STATION</u>	<u>TOTAL</u> <u>(INCHES)</u>	<u>NORMAL</u> <u>(INCHES)</u>	<u>PCT. OF</u> <u>NORMAL</u>	<u>RECORD</u> <u>TYPE</u>	<u>RECORDS</u> <u>BEGAN</u>
ST. CLOUD, MN	10.52	4.81	218.7	HIGHEST	1893
GREEN BAY, WI	10.29	3.15	326.7	HIGHEST	1947
MOLINE, IL	9.59	4.30	242.5	HIGHEST	1947
ROCHESTER, MN	9.27	3.76	246.5	HIGHEST	1961
SPRINGFIELD, IL	9.22	3.52	261.9	HIGHEST	1954
LAS VEGAS, NV	0.97	0.08	1212.5	HIGHEST	1937
SAN DIEGO/LINDBERGH, CA	0.87	0.05	1740.0	HIGHEST	1851
GREENVILLE, SC	0.90	4.36	20.6	LOWEST	1951
SAN ANGELO, TX	0.05	1.85	2.7	LOWEST	1951
ROSWELL, NM	0.02	0.98	2.0	LOWEST	1951
MIDLAND, TX	0.01	1.42	0.7	LOWEST	1947
GREENSBORO, NC	0.00	3.91	0.0	LOWEST	1951
LUBBOCK, TX	0.00	2.79	0.0	LOWEST	1951
CLOVIS/CANNON AFB, NM	0.00	2.60	0.0	LOWEST	1930
BIG DELTA, AK	0.00	2.38	0.0	LOWEST	1951
DALHART, TX	0.00	2.11	0.0	LOWEST	1951
DEL RIO, TX	0.00	1.72	0.0	LOWEST	1951
WINK, TX	0.00	1.43	0.0	LOWEST	1951
TUCUMCARI, NM	0.00	1.40	0.0	LOWEST	1951
PUEBLO, CO	0.00	1.14	0.0	LOWEST	1947
CARLSBAD, NM	0.00	0.71	0.0	LOWEST	1951
FORT YUKON, AK	0.00	0.65	0.0	LOWEST	1918
BARTER ISLAND, AK	0.00	0.59	0.0	LOWEST	1948
EL PASO, TX	0.00	0.54	0.0	LOWEST	1879
LOVELOCK, NV	0.00	0.49	0.0	LOWEST	1951
DEMING, NM	0.00	0.47	0.0	LOWEST	1877
RED BLUFF, CA	0.00	0.41	0.0	LOWEST	1878

*Note: Trace precipitation is considered no precipitation. Stations with no precipitation are only included if normal precipitation is 0.25 inches or more.*

**TABLE 6. RECORD JUNE AVERAGE TEMPERATURES.**

<u>STATION</u>	<u>AVERAGE</u> <u>(°F)</u>	<u>NORMAL</u> <u>(°F)</u>	<u>DEPARTURE</u> <u>(°F)</u>	<u>RECORD</u> <u>TYPE</u>	<u>RECORDS</u> <u>BEGAN</u>
PHOENIX, AZ	93.7	86.5	+7.2	HIGHEST	1877
ROSWELL, NM	85.0	78.1	+6.9	HIGHEST	1951
LUBBOCK, TX	84.4	77.5	+6.8	HIGHEST	1951
MIDLAND, TX	86.5	79.9	+6.7	HIGHEST	1947
TUCSON, AZ	88.7	82.9	+5.8	HIGHEST	1947
EL PASO, TX	87.1	81.3	+5.8	HIGHEST	1879
SAN ANTONIO, TX	87.4	81.9	+5.6	HIGHEST	1947
WACO, TX	86.4	81.9	+4.5	HIGHEST	1951
AUSTIN, TX	85.8	81.5	+4.3	HIGHEST	1951
VICTORIA, TX	85.3	81.7	+3.6	HIGHEST	1961
GALVESTON, TX	84.9	81.3	+3.6	HIGHEST	1873
YAKUTAT, AK	53.1	49.5	+3.6	HIGHEST	1941
LAKE CHARLES, LA	82.4	80.1	+2.3	HIGHEST	1961

**TABLE 7. RECORD JUNE EXTREME TEMPERATURES.**

<u>STATION</u>	<u>EXTREME</u> (°F)	<u>DATE</u>	<u>RECORD</u> <u>TYPE</u>	<u>RECORDS</u> <u>BEGAN</u>
YUMA, AZ	123	26 JUN 90	HIGHEST	1949
PHOENIX, AZ	122	26 JUN 90	ALL-TIME HIGHEST	1938
TUCSON, AZ	117	26 JUN 90	ALL-TIME HIGHEST	1940
LOS ANGELES (CIVIC CENTER), CA	112	26 JUN 90	ALL-TIME HIGHEST	1936
ROSWELL, NM	110	25 JUN 90	ALL-TIME HIGHEST	1973
LUBBOCK, TX	110	24 JUN 90	ALL-TIME HIGHEST	1947
MIDLAND, TX	109	25 JUN 90	HIGHEST	1949
PUEBLO, CO	108	29 JUN 90	ALL-TIME HIGHEST	1947
AMARILLO, TX	108	24 JUN 90	ALL-TIME HIGHEST	1941
SCOTTSBLUFF, NE	106	27 JUN 90	HIGHEST	1943
GRAND JUNCTION, CO	105	27 JUN 90	ALL-TIME HIGHEST	1946
CASPER, WY	102	30 JUN 90	HIGHEST	1950
VICTORIA, TX	101	23 JUN 90	HIGHEST	1961
GREAT FALLS, MT	100	30 JUN 90	HIGHEST	1938
LAKE CHARLES, LA	99	19 JUN 90	HIGHEST	1962
BARROW, AK	71	25 JUN 90	HIGHEST	1921
COLUMBIA, MO	43	04 JUN 90	LOWEST	1969
KANSAS CITY/INTL., MO	42	04 JUN 90	LOWEST	1972
SACRAMENTO, CA	41	01 JUN 90	LOWEST	1940
DAYTON, OH	40	05 JUN 90	LOWEST	1944
NORFOLK, NE	38	04 JUN 90	LOWEST	1946
ROCHESTER, MN	35	04 JUN 90	LOWEST	1961

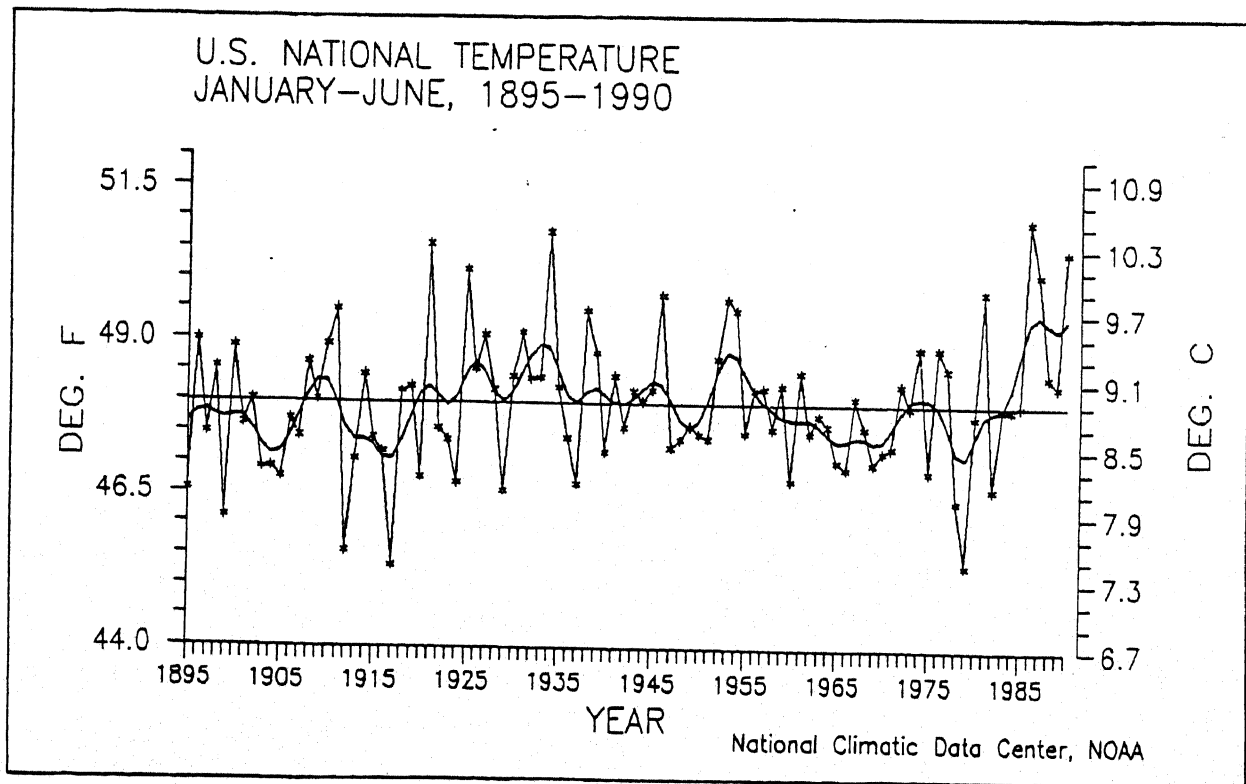


Figure 6. U.S. National January-June historic temperatures, 1895-1990. So far, this year has been unusually warm, ranking as the 4th warmest January-June on record. The other top 3 warmest starts to a year (through June) were 1986 (1st), 1934 (2nd), and 1921 (3rd). The last five years have had above normal January-June temperatures, causing the long-term filtered curve to reach unprecedented high levels. This is also depicted on a statewide basis (page 21), with three-fourths of the states observing the tenth warmest, or warmer, January-June on record. Florida and the Carolinas had the warmest start to a year.

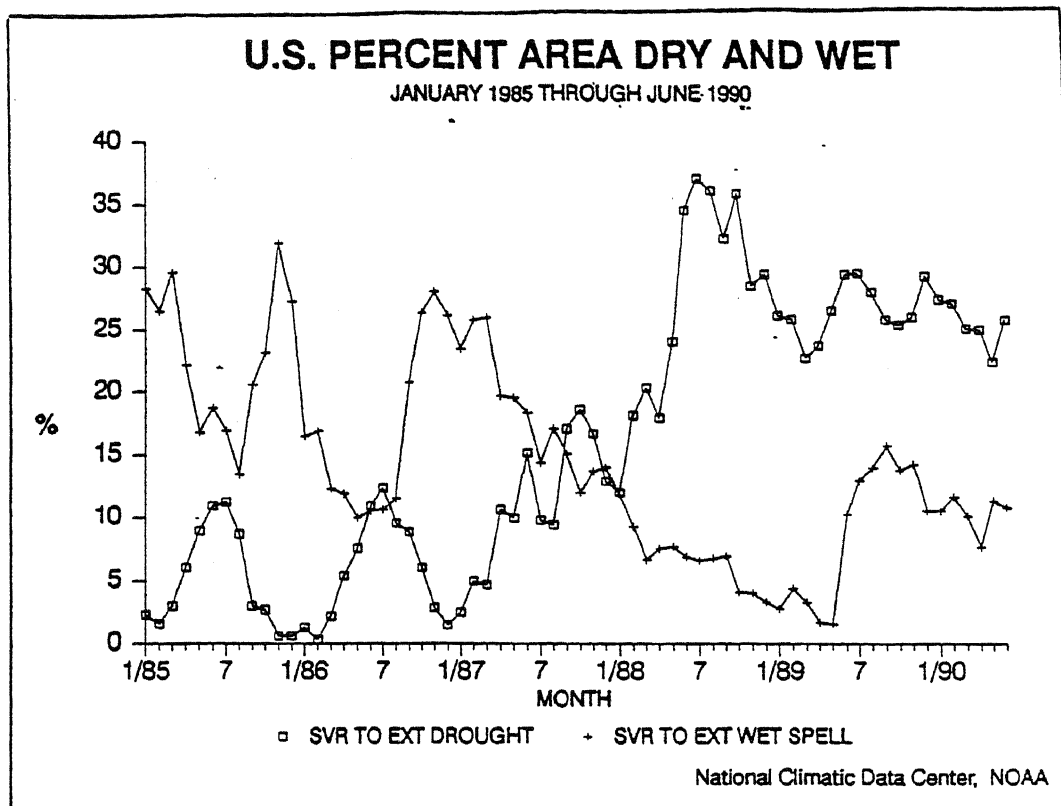


Figure 7. U.S. percent of area dry ( $PDI < -3$ ) and wet ( $PDI > +3$ ) January 1985-June 1990, based upon the Palmer Drought Index (PDI). Approximately one-fourth of the country was in the severe to extreme long-term drought category while a tenth of the nation continued in the severely to extremely moist category. In May 1988, the areal percent of the U.S. experiencing severe to extreme drought surpassed 22%. The overall national drought area has been at or above this level for the past 26 months. This is the second longest time in this century that the U.S. has been constantly affected by such a large area. Only the Great Drought of the 1950's was worse (see page 22, bottom table).

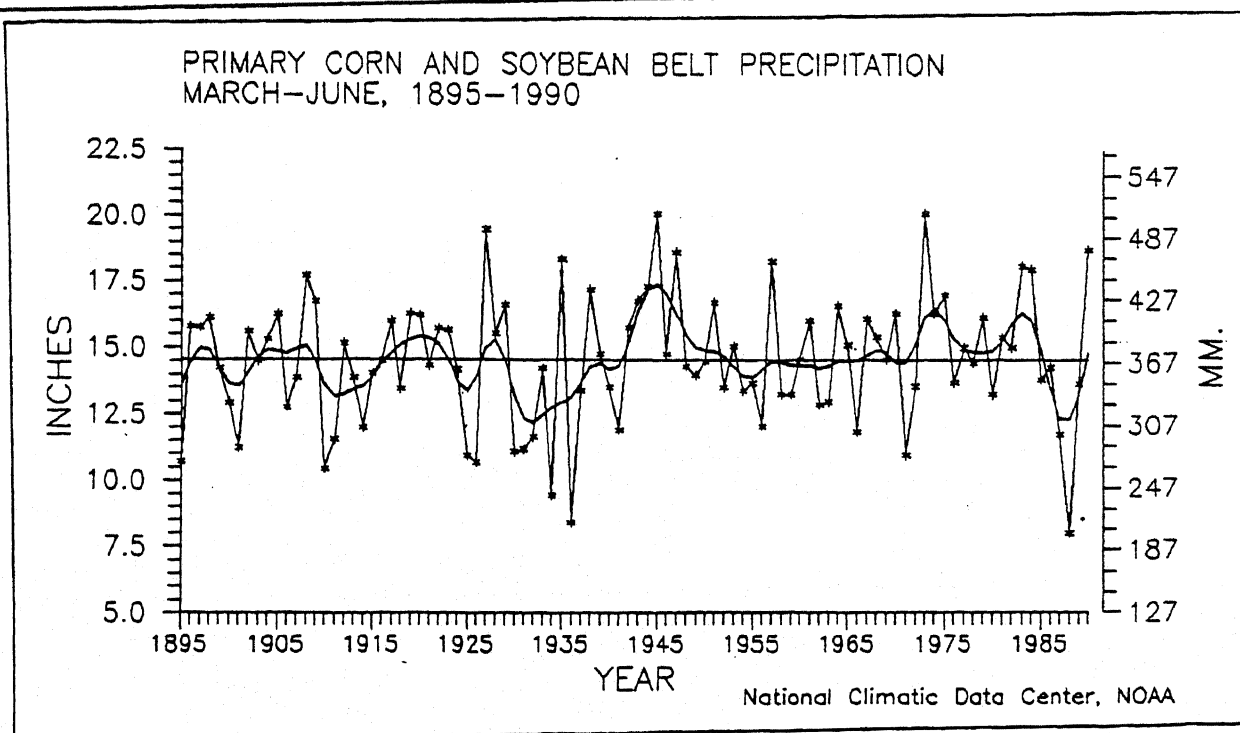


Figure 8. Primary Corn and Soybean belt precipitation, March-June, 1895-1990. This year's growing season in the primary corn and soybean belts have been extremely wet, ranking as the fourth wettest period on record. This March-June sharply contrasts with the last half of the 1980's, which had near to below normal precipitation, including the driest March-June period ever (1988).

**PRECIPITATION RANKINGS FOR JAN – JUN 1990, BASED ON THE PERIOD 1895 – 1990 (96 YEARS) WHERE 1 = DRIEST AND 96 = WETTEST.**

<u>STATE</u>	<u>RANK</u>	<u>STATE</u>	<u>RANK</u>	<u>STATE</u>	<u>RANK</u>	<u>STATE</u>	<u>RANK</u>
AL	86	IA	94	NE	58	RI	74
AZ	39	KS	72	NV	52	SC	17
AR	93	KY	62	NH	59	SD	87
CA	30	LA	85	NJ	57	TN	50
CO	32	ME	51	NM	50	TX	73
CT	85	MD	68	NY	93	UT	33
DE	49	MA	96	NC	43	VT	83
FL	22	MI	64	ND	44	VA	47
GA	27	MN	86	OH	77	WA	91
ID	63	MS	78	OK	93	WV	45
IL	96	MO	94	OR	47	WI	87
IN	88	MT	22	PA	64	WY	24

*National Climatic Data Center*

**TEMPERATURE RANKINGS FOR JAN – JUN 1990, BASED ON THE PERIOD 1895 – 1990 (96 YEARS) WHERE 1 = COLDEST AND 96 = WARMEST.**

<u>STATE</u>	<u>RANK</u>	<u>STATE</u>	<u>RANK</u>	<u>STATE</u>	<u>RANK</u>	<u>STATE</u>	<u>RANK</u>
AL	77	IA	92	NE	88	RI	90
AZ	83	KS	86	NV	81	SC	96
AR	88	KY	93	NH	93	SD	96
CA	71	LA	91	NJ	95	TN	96
CO	91	ME	76				
CT	93	MD	95				
DE	94	MA	91				
FL	96	MI	92				
GA	89	MN	93				
ID	82	MS	84				
IL	91	MO	88				
IN	94	MT	82				

**STATISTICS FOR SELECTED RIVER BASINS: PRECIPITATION RANKING FOR OCT – JUN 1989–90, WHERE RANK OF 1 = DRIEST, 95 = WETTEST, BASED ON THE PERIOD 1895 TO 1990; AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG–TERM (PALMER) DROUGHT, AND AREAL PERCENT OF THE BASIN EXPERIENCING SEVERE OR EXTREME LONG–TERM (PALMER) WET CONDITIONS, AS OF JUNE 1990. RIVER BASIN REGIONS AS DEFINED BY THE U.S. WATER RESOURCES COUNCIL.**

<u>RIVER BASIN</u>	<u>PRECIPITATION</u>	<u>% AREA</u>	<u>% AREA</u>
	<u>RANK</u>	<u>DRY</u>	<u>WET</u>
Missouri Basin	40	32.7	3.7
Pacific Northwest Basin	62	36.8	3.1
California Basin	8	44.3	0.0
Great Basin	18	52.4	0.0
Upper Colorado Basin	2	100.0	0.0
Lower Colorado Basin	22	92.2	0.0
Rio Grande Basin	33	29.5	0.0
Arkansas–White–Red Basin	62	0.0	32.7
Texas Gulf Coast Basin	51	16.3	0.0
Souris–Red–Rainy Basin	37	50.7	8.5
Upper Mississippi Basin	85	6.1	34.1
Lower Mississippi Basin	72	0.0	22.6
Great Lakes Basin	67	0.0	12.7
Ohio River Basin	67	0.0	25.6
Tennessee River Basin	51	0.0	12.3
New England Basin	66	0.0	23.5
Mid–Atlantic Basin	64	0.0	9.0
South Atlantic–Gulf Basin	61	8.0	14.5

**20TH CENTURY PERIODS HAVING 22% OR MORE OF THE CONTIGUOUS UNITED STATES IN SEVERE TO EXTREME DROUGHT (PERIODS OF 10 OR MORE CONSECUTIVE MONTHS).**

<u>PERIOD</u>	<u>NUMBER OF MONTHS</u>
Aug 1901–Sep 1902	14
Dec 1930–Jan 1932	13
Nov 1933–Jun 1935	20
Jun 1936–Mar 1937	10
Sep 1953–Mar 1957	43
May 1988–Present (Jun 1990)	26

